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The Auk

A Quarterly Journal of Ornithology

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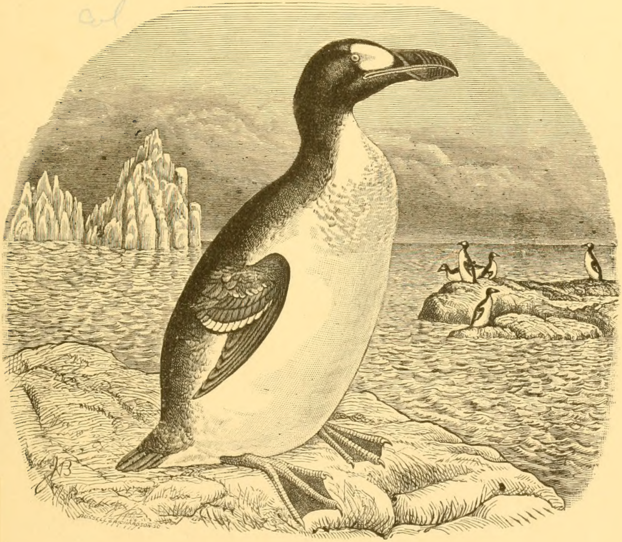

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BY-LAWS AND RULES OF THE AMERICAN ORNITHOLOGISTS' UNION.

By-Laws.

Article I. Of Members.

Section 1. The Union shall consist of Active, Associate, Honorary, and Corresponding Members, and Patrons.

Section 2. Active Members shall be residents of the United States or Canada, and shall be limited to fifty in number.

Section 3. Associate Members shall be residents of the United States or Canada, and shall not be limited in number.

Section 4. Honorary Members shall be limited to twenty-five in number. They shall be chosen for their eminence in Ornithology, and may be residents of any country.

Section 5. Corresponding Members shall be limited to one hundred in number, and may be residents of any country.

Article II. Of Officers.

Section 1. The Officers of the Union shall be a President, two Vice-Presidents, a Secretary, a Treasurer, and seven Councillors. These officers shall constitute the Board of Management or Council of the Union, for the transaction of such business as may be assigned to it by the By-Laws or by the Union.

Section 2. The President or, in case of his absence or inability to act, one of the Vice-Presidents shall preside at the meetings of the Union and of the Council, and shall appoint all Committees except such as are otherwise provided for.

Section 3. The Secretary shall keep a record of the meetings of the Union and Council; shall give at least three weeks' notice to Active and Associate Members of the time and place of meetings, shall report to the Council all nominations received by him for membership, and shall send to each Active Member a list of the nominees to Active Membership; shall notify Members elect of their election, and Committees of their appointment; shall acknowledge all donations to the Union, and report the same at the next Stated Meeting; and he shall have charge of the corporate seal of the Union.

Section 4. The Treasurer shall collect all dues from members, attend to all receipts and disbursements of the Union, and make a report of the same to the Union at each Stated Meeting.

Section 5. Vacancies occurring in any office may be filled by the Council until the next annual election.

Article III. Of Meetings.

Section 1. Stated Meetings of the Union shall be held annually, at such times and places as the Union may determine. Special meetings shall be called by the Council as occasion may require, due notice thereof being given by the Secretary

Section 2. Ten Active Members shall constitute a quorum for the transaction of business.

Section 3. A majority of the Council shall constitute a quorum for the transaction of business.

Section 4. The scientific meetings of the Union shall be open to the public, unless otherwise ordered by a majority of the Members present.

Section 5. A Stated Meeting of the Council shall immediately precede each Stated Meeting of the Union. Special meetings of the Council may be called by the President and Secretary, or by any four Members of the Council.

Article IV. Of Elections, Resignations, and Expulsions.

Section 1. All elections shall be by ballot. Officers, and Active and Honorary Members, shall be elected individually.

Section 2. All Officers shall be elected annually; the term of office shall begin immediately after the election, and the Officers shall continue in office until their successors are elected.

Section 3. Elections of Officers are to be held as follows: In each case nominations shall be made by means of an informal ballot, the result of which shall be announced by the Secretary; after which the first formal ballot shall be taken.

In the ballot for Vice-Presidents, and Members of the Council, each voter shall write on one ballot as many names as there are Officers to be elected, viz., two on the first ballot for Vice-President, and seven on the first ballot for Members of the Council; and on each subsequent ballot many as names as there are persons yet to be elected; and those persons who receive a majority of the votes cast shall be declared elected, *provided that the number of persons receiving a majority does not exceed the number of persons to be elected, in which case the vacancies shall be filled by the candidates receiving the highest majorities.*

If in any case the informal ballot result in giving a majority for any of the candidates, it may be declared formal by a majority vote.

Section 4. Nominations to Active Membership shall be made in writing; each nomination shall be signed by three Active Members, and shall be handed to the Secretary at least three months prior to the Annual Meeting at which it is to be voted on. The number of Active Members to be elected shall be first decided by a majority vote of the Active Members present at the Stated Meeting at which the election is to be held and they shall be elected in the following manner: Each member may select from the list to be voted upon, and inscribe on a ballot, names not to exceed in number the vacancies to be filled. Absent members may send ballots for five of the candidates, in order of preference, to the Secretary in a sealed blank envelope inclosed in another, and such envelopes shall be opened only by the tellers. From the names receiving the highest number of votes on this preference ballot, the members present may proceed to elect new members in the following manner: At each ballot each member present may vote for not exceeding the full number of persons to be elected, and the person receiving the highest number of votes shall be declared elected, provided that he receive at least three-fourths of the votes cast.

Section 5. Every person elected to Active Membership shall pay to the Treasurer, within six months from the date of election, an entrance fee of ten dollars, and subscribe to the By-Laws of the Union.

Section 6. The nomination of Honorary and Corresponding Members shall be made by the Council to the Union, and such members shall be elected by ballot, and the affirmative votes of three-fourths of the Active Members present shall be necessary to a choice. Honorary and Corresponding Members shall be enrolled upon signifying acceptance of membership.

Section 7. Associate Members may be nominated to the Union through the Secretary by any Active Member, and the nominations shall be acted upon by the Union at the next Stated Meeting; such Members may be thereupon elected by ballot; and the affirmative votes of a majority of the Active Members present shall be necessary to a choice.

Section 8. Active Members only shall be entitled to vote and be eligible to office. Honorary, Corresponding, and Associate Members may attend meetings, present papers, and take part in the scientific proceedings of the Union.

Section 9. Every Honorary, Corresponding, and Associate Member-elect shall notify the Secretary of his acceptance of membership within one year from the date of his election; in default of which notification, his name shall not be entered on the roll of members.

Section 10. Resignations shall be addressed to the President and acted on by the Council.

Section 11. Any member may be expelled from the Union on satisfactory evidence that said member is an improper person to be connected with the Union, or has made improper use of his membership; such expulsion shall be by a two-thirds vote of the Active Members present at a Stated Meeting, three months previous notice of such proposed action having been given by the Secretary to all Active Members, and to the member accused.

Article V. Of Fees and Assessments.

Section 1. The entrance fee for Active Members shall be ten dollars, and for Associate Members three dollars. The annual assessment shall be for Active Members five dollars, and for Associate Members three dollars. The entrance fee shall cover the annual dues for the first year of membership, dating from the time of election.

No fee or assessment shall be required of Honorary and Corresponding Members.

Section 2. The annual assessment for the ensuing year shall fall due on the first day of each Stated Meeting.

Section 3. No Active Member, one year in arrears for dues, shall be entitled to vote or take part in the business of any meeting.

Section 4. The name of any member two years in arrears for dues shall be removed from the roll of membership; provided that two notices of indebtedness shall have been given him by the Treasurer, at intervals of three months; and no such person shall be restored to membership until all arrearages have been paid, or the person has been re-elected.

Section 5. Active and Associate Members not in arrears for dues shall receive the regular serial publication of the Union, entitled 'The Auk,' gratis. All the publications of the Union shall be sent gratis to Honorary Members.

Section 6. On payment of one hundred dollars any Active Member may become a Life Member, exempt from all further fees or assessments, and retaining all the rights and privileges of an Active Member.

Section 7. Any person desirous of furthering the aims of the Union may become a Patron thereof on payment of the sum of five hundred dollars, and his name shall be perpetually inscribed upon the records of the Union.

Article VI. Of Scientific Communications and Publications.

Section 1. The Union may publish, under the direction of the Council, a serial Journal of Ornithology, called 'The Auk,' and such reports, proceedings, memoirs, and other works on Ornithology as the Council may authorize.

Section 2. Communications on Ornithology may be read at the Stated Meetings of the Union, by any member, or for him by any other member, notice of the same having been previously given to the Secretary.

Section 3. Any member may read a paper for a person who is not a member, and shall not be considered responsible for the facts or opinions expressed by the author, but shall be held responsible for the appropriateness of the paper. Persons who are not members may read papers on invitation of the President, and with the approval of the Committee of Arrangements.

Section 4. The Secretary shall receive at any time scientific papers for presentation at the Stated Meetings, and shall report the date of their reception at the next Stated Meeting. But such papers shall date, in the records of the Union, from the date of their presentation to the Union; their order of presentation shall be that in which they were registered, unless changed by the Council.

Article VII. Of the Property of the Union.

Section 1. All investments of funds shall be made by the Treasurer, in the corporate name of the Union, in securities approved by the Council.

Section 2. No contract shall be binding upon the Union which has not been authorized by the Council. No liability exceeding one thousand dollars, nor total debt exceeding two thousand dollars, shall be incurred by the Council without the formal consent of the Union as expressed by a majority vote at a Stated Meeting.

Section 3. Bequests and trusts having for their object the advancement of Ornithology may be accepted and administered by the Union.

Article VIII. Of Additions and Amendments to the By-Laws.

Additions and Amendments to the By-Laws must be in writing, signed by two Active Members, and proposed at a Stated Meeting of the Union, to be acted upon at the next stated Meeting. A two-thirds vote of the Active Members present shall be necessary for adoption.

RULES.

I. In the absence of any Officer at a Stated Meeting a member shall be chosen to perform his duties *pro tempore* by a plurality of *viva voce* votes, upon open nomination.

II. The order of business at Stated Meetings shall be as follows:—

First Days' Session.

1. Chair taken by the President, or, in his absence, by one of the Vice-Presidents.
2. Roll-call of Active Members by the Secretary.
3. Reading and approval of the minutes of the previous meeting.
4. Report of the Secretary.
5. Report of the Treasurer.

6. Report of the Council, including nominations for membership and other business or recommendations.
7. Election of Officers for the ensuing year.
8. Election of Members.
    - *a.* Active.
    - *b.* Honorary.
    - *c.* Corresponding.
    - *d.* Associate.
9. Action on business reported from the Council.
10. Appointment by the President of a Committee of three Active Members, none of whom shall be members of the Council, to audit the accounts of the Treasurer.
11. Appointment by the President of a Committee on Resolutions.
12. Reports of Committees.
13. Miscellaneous business.
14. Presentation and discussion of scientific papers, or remarks.
15. Adjournment.

Second Day's Session.

1. Chair taken by the President, or, in his absence, by one of the Vice-Presidents.
2. Roll-call of Active Members by the Secretary.
3. Reading and approval of minutes of previous day's session.
4. Report of the Auditing Committee.
5. Report from the Council.
6. Action on business from the Council.
7. Reports of Committees.
8. Miscellaneous business.
9. Presentation and discussion of scientific papers, or remarks.
10. Adjournment.

Third Day's Session.

1. Chair taken by the President, or, in his absence, by one of the Vice-Presidents.
2. Roll-call of Active Members by the Secretary.

3. Reading and approval of minutes of previous day's session.

4. Selection of time and place of the next Stated Meeting.

5. Appointment by the President of a Committee, consisting of three Active Members, to co-operate with the President and Secretary as a Committee of Arrangements for the next Stated Meeting.

6. Report from the Council.

7. Action on business reported from the Council.

8. Reports of Committees.

9. Miscellaneous business.

10. Presentation and discussion of scientific papers, or remarks.

11. Reading and correction of the minutes of the day's session.

12. Adjournment.

III. The business portion of each day's session shall be open to members only.

IV. The Rules of Order of the Union shall be those of the United States Senate, unless suspended by unanimous consent.

V. The order of business at any session of the Union may be varied from the above, by a two-thirds vote of the members present.

VI. The claims and qualifications of nominees for membership may be discussed before the Union, but such discussions shall be held as strictly confidential.

VII. The By-Laws and Rules, and list of the Officers and Members of the Union, may be published at such intervals and in such manner as the Council may determine.

VIII. The printing for the Union shall be under the direction of the President and Secretary, and three other Members of the Council, who shall be appointed by the Council, and these five shall constitute a Committee of Publication.

IX. The publication of the Quarterly Journal, 'The Auk,' shall be in charge of the Council, which, at each Stated Meeting of the Union, shall appoint the editorial staff for the ensuing year, and shall authorize the editorial staff to secure a competent publisher, and otherwise provide for the proper publication of the Journal.

X. Nominations for membership must contain the full name, residence, official position if any, and date of nomination of the candidate, and must be signed by the member or members making the nomination. A suitable form of nomination shall be provided by the Secretary.

XI. Any of the above Rules may be amended, suspended, or repealed, on the written motion of two members, signed by them, and presented at a Stated Meeting of the Union, in case the same shall be approved by a two-thirds vote of the members present.

OFFICERS AND COMMITTEES OF THE AMERICAN ORNITHOLOGISTS' UNION. 1887-88.

	Expiration of Term.
Allen, J. A., *President*	November, 1888.
Coues, Elliott, Ridgway, Robert, } *Vice Presidents*	" 1888.
Merriam, C. Hart, *Secretary*	" 1888.
Dutcher, William, *Treasurer*	" 1888.

Additional Members of the Council.

Brewster, William	November, 1888.
Chamberlain, Montague	" 1888.
Cory, Charles B.	" 1888.
Elliot, Daniel G.	" 1888.
Henshaw, Henry W.	" 1888.
Lawrence, George N.	" 1888.
Stejneger, Leonhard	" 1888.

Editorial Staff of 'The Auk.'

Allen, J. A., *Editor*	November, 1888.
Batchelder, C. F., *Associate Editor*	" 1888.

Committees.

Committee on Publications.

Allen, J. A., *Chairman.*
Merriam, C. Hart, *Secretary.*
Brewster, William.
Coues, Elliott.
Ridgway, Robert.

Committee of Arrangements for the Meeting of 1888.

Allen, J. A., *Chairman.*
Fisher, A. K.
Henshaw, H. W.
Merriam, C. Hart.
Stejneger, L.

Committee on the Migration and Geographical Distribution of North American Birds.

Merriam, C. Hart, *Chairman.*
Allen, J. A.
Belding, L.
Chadbourne, A. P.
Chamberlain, Montague.
Fisher, A. K.
McIlwraith, Thomas.
Mearns, Edgar A.
Merrill, James C.
Ridgway, Robert.

Committee on Protection of North American Birds.

Sennett, George B., *Chairman.*
Dutcher, William, *Sec'y and Treas.*
Allen, J. A.
Bicknell, E. P.
Brewster, William.
Chamberlain, M.
Foster, L. S.
Goss, N. S.
Grinnell, G. B.
Holder, J. B.

Committee on Avian Anatomy.

Coues, Elliott, *Chairman.*
Shufeldt, R. W.

MEMBERS OF THE AMERICAN ORNITHOLOGISTS' UNION. DECEMBER, 1887.

ACTIVE MEMBERS.

[Ommission of date indicates a Founder.]

	Date of Election
Aldrich, Hon. Charles, Webster City, Iowa	—
Allen, J. A., Am. Mus. Nat. Hist., 77th St. and 8th Ave., New York City	—
Bailey, H. B., 51 South St., New York City	—
* Baird, Prof. Spencer F., Washington, D. C	—
Barrows, Prof. W. B., Dept. of Agriculture, Washington, D. C	1883
Batchelder, Charles F., Cambridge, Mass	—
Belding, L., Stockton, Cal	1883
Bendire, Capt. Charles E., U. S. A., Smiths. Inst., Washington, D. C	—
Bicknell, Eugene P., P. O. Box 2958, New York City	—
† Brewster, William, Cambridge, Mass	—
Brown, Nathan C., Portland, Me	—
Chamberlain, Montague, St. John, N. B	—
Cooke, Prof. W. W., Burlington, Vt	1884
† Cory, Charles B., 8 Arlington St., Boston, Mass	—
† Coues, Dr. Elliott, Smiths. Inst., Washington, D. C	—
Deane, Ruthven, 2 Wabash Ave., Chicago, Ill	1883
Dutcher, William, 51 Liberty St., New York City	1886
Dwight, Jonathan, Jr., 2 East 34th St., New York City	1886
† Elliot, Daniel G., Am. Mus. Nat. Hist., 77th St. and 8th Ave., New York City	—

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* Deceased. † Life Member.

Fisher, Dr. Albert K., Dept. of Agriculture, Washington, D. C.	—
Forbes, Prof. S. A., Champaign, Ill.	1883
Gill, Prof. Theodore N., Smiths. Inst., Washington, D. C.	1883
† Goss, Col. N. S., Topeka, Kans.	1883
Grinnell, Dr. George B., 'Forest and Stream' Office, New York City,	1883
Henshaw, Henry W., Smiths. Inst., Washington, D. C.	1883
Holder, Dr. J. B., Am. Mus. Nat. Hist., 77th St. and 8th Ave., New York City	—
Jeffries, Dr. J. Amory, 91 Newbury St., Boston, Mass.	1883
Kidder, Dr. J. H., Washington, D. C.	1883
Langdon, Dr. F. W., 65 West 7th St., Cincinnati, O.	1887
Lawrence, George N., 45 East 21st St., New York City	1883
Lawrence, Newbold T., 51 Liberty St., New York City	1883
McIlraith, Thomas, Hamilton, Ontario, Can.	—
Mearns, Dr. Edgar A., U. S. A., Fort Verde, Ariz.	—
Merriam, Dr. C. Hart, Dept. of Agriculture, Washington, D. C.	—
† Merrill, Dr. James C., U. S. A., Frankford Arsenal, Philadelphia, Pa.	1883
Nehrling, H., 815 North Ave., Milwaukee, Wis.	1883
Nelson, E. W., Springerville, Arizona	1883
Prentiss, Dr. D. W., 1101 14th St., N. W., Washington, D. C.	—
Purdie, H. A., West Newton, Mass.	—
Ridgway, Robert, Smiths. Inst., Washington, D. C.	—
Roberts, Dr. Thomas S., 27 N. 8th St., Minneapolis, Minn.	1883
Sage, John H., Portland, Conn.	1883
Saunders, Wm. E., 188 Dundas St., London, Ontario, Can.	1883
Scott, W. E. D., Tarpon Springs, Fla.	1886
Sennett, George B., Am. Mus. Nat. Hist., 77th St. and 8th Ave., New York City	1883
Shufeldt, Dr. Robert W., U. S. A., Fort Wingate, N. M.	—
Stejneger, Dr. Leonhard, Smiths. Inst., Washington, D. C.	1884
* Wheaton, Dr. J. M., Columbus, Ohio	—
Widmann, Otto, 3826 So. Broadway, St. Louis, Mo.	1884

HONORARY MEMBERS.

	Date of Election
Bocage, Prof. J. V. Barboza du, Royal Museum, Lisbon, Portugal	1883
Burmeister, Dr. Hermann von, Director National Museum, Buenos Ayres	1884
Cabanis, Prof. Dr. Jean, Alte Jacobstrasse, 103a, Berlin, Germany	1883
Dresser, Henry E., Topclyffe Grange, Farnborough, Beckenham, Kent, England	1883
Finsch, Dr. Otto, Bremen, Germany	1883
Gätke, Heinrich, Heligoland, via Bremen, Germany	1884

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* Deceased. † Life Member.

Giglioli, Dr. Henry Hillyer, Royal Superior Institute, Florence, Italy	1883
Gundlach, Dr. Juan, Ingenio Fermina, Bemba, Cuba	1883
Gurney, John Henry, Northrepps Hall, Norwich, England	1883
Hartlaub, Dr. Gustav, Bremen, Germany	1883
Hume, Allan Octavian, Simla, India	1883
Huxley, Prof. Thomas H., 4 Marlborough Place, Abbey Road, London, N. W	1883
Krauss, Dr. Ferdinand, Stuttgart, Germany	1883
Milne-Edwards, Prof. Alphonse, Rue Cuvier, 57, Paris	1883
Newton, Prof. Alfred, University of Cambridge, England	1883
Parker, Prof. William Kitchen, Crowland, Trinity Road, Upper Woting, London, S. W	1883
Pelzeln, Dr. August von, 13, Royal Zoöl. Museum, Vienna	1883
Salvadori, Prof. Count Tommaso, Royal Zöol. Museum, Turin, Italy	1883
Salvin, Osbert, Hawksfold, Fernhurst, Haslemere, England	1883
Saunders, Howard, 7 Radnor Place, Hyde Park, London, W.	1884
* Schlegel, Prof. Hermann, Leyden, Holland	1883
Sclater, Dr. Philip Lutley, 11 Hanover Sq., London, W	1883
Seebohm, Henry, 6 Tenterden St., Hanover St., London, W	1884
Sharpe, Richard Bowdler, British Museum, South Kensington, London, S. W.	1883
Taczanowski, Dr. W., University, Warsaw, Russia	1884
Wallace, Prof. Alfred Russel, Nutwood Cottage, Frith Hill, Godalming, England	1883

CORRESPONDING MEMBERS.

	Date of Election
Altum, Dr. C. A., Eberswalde, Germany	1884
Anderson, Dr. John, India Museum, Calcutta	1884
Baldamus, Dr. Eduard, Halle, Germany	1884
Berlepsch, Count Hans von, Münden, Germany	1883
Blakiston, Capt. Thomas W., London, Ohio	1883
Blanford, W. T., Arts Club, London	1884
Blasius, Dr. Rudolph, Brunswick, Germany	1884
Blasius, Dr. Wilhelm, Brunswick, Germany	1884
Bogdanow, Prof. Dr. Modest, University of Moscow, Moscow	1884
Brooks, W. E., Milton, Ontario, Canada.	1886
Buller, Sir Walter Lawry, 52 Stanhope Gardens, Queen's Gate, London, S. W	1883
Bureau, Dr. Louis, Nantes, France	1884
Butler, Lieut.-Col. E. A., Herringfleet Hall, Lowestoft, England	1884
Büttikofer, Dr. T., Leyden, Holland	1886
Collett, Prof. Robert, Christiania, Norway	1883
Cooper, Dr. J. G., Haywards, California	1884

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* Deceased.

Cordeaux, John, Great Cotes, Ulceby, Lincolnshire, England	1884
Dalgleish, John J., 8 Athole Crescent, Edinburgh, Scotland	1883
David, L'Abbé Armand, Rue de Sèvres, 95, Paris	1883
Dubois, Dr. Alphonse, Museum Nat. History, Brussels	1884
Dugès, Prof. Alfredo, Colegio del Estado, Guanajuanto, Mexico	1884
Echt, Adolf Bachofen von, Vienna	1884
Fatio, Dr. Victor, Geneva, Switzerland	1884
Fielden, Lieut.-Col. H. W., West House, Wells, Norfolk, England	1884
Ferrari-Perez, Prof. Fernando, Naturalist Mexican Geol. Expl. Commission, Pueblo, Mexico	1885
Freke, Percy Evans, Rosemount, Dundrum, County Dublin, Ireland	1883
Gadow, Dr. Hans, The New Museums, Cambridge, England	1884
Girtanner, Dr. A., St. Galle, Switzerland	1884
Godman, F. Du Cane, 10 Chandos Street, Cavendish Sq., London	1883
Godwin-Austen, Lieut-Col. H. H., Shalford House, Guilford, England	1884
Grandidier, Alfred, 6 Rond-Point des Champs Elysées, Paris	1883
Gurney, John Henry, Jr., Northrepps Hall, Norwich, England	1883
* Haast, Dr. Julius von, Christ-church, New Zealand	1884
Hargitt, Edward, Broadwater Lodge, Broadwater, Worthing, Sussex, England	1884
Harting, James Edward, 6 Oxford and Cambridge Mansions, London, N. W	1883
Harvie-Brown, John A., Dunipace House, Larbert, Stirlingshire, Scotland	1883
Hayek, Dr. Gustav von, Vienna	1884
Holub, Dr. Emil, Vienna	1884
Homeyer, Dr. E. F. von, Stolp, Germany	1884
Krukenberg, Dr. E. F. W., Würzburg, Germany	1884
Krüper, Dr. Theobald J., University Museum, Athens, Greece	1884
Layard, E. L., H. B. M. Consul, Noumea, New Caledonia	1884
MacFarlane, Robert, Winnipeg, Manitoba	1886
Madarász, Dr. Julius von, National Museum, Budapest, Hungary	1884
Malmgren, Dr. A. J., University, Helsingfors, Finland	1884
Marschall, Graf A. F., Wallzeil, 33, Vienna	1884
Menzbier, Dr. M., Moscow, Russia	1884
Meyer, Dr. A. B., Königl. Zool. Museum, Dresden	1884
Middendorf, Dr. A. von, Dorpat, Russia	1884
Mojsisovics, Dr. A. von, Gratz, Austria	1884
Namiye, M., Tokio, Japan	1886
Nicholson, Frank, 62 Fountain St., Manchester, England	1884
Oates, E. W., 6 Tenterden St., Hanover Sq., London	1884
Oustalet, Dr. Émile, Jardin des Plantes, 55 Rue de Buffon, Paris.	1883
Palmén, Prof. J. A., Helsingfors, Finland	1883
Philippi, Dr. R. A., Santiago, Chili	1884

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* Deceased.

Prejevalski, Colonel N., Acad. of Science, St. Petersburg, Russia..1884
Pryer, Harry, Yokohama, Japan........1883
Radde, Dr. Gustav Ferdinand, Tiflis, Russia........1884
Ramsey, E. P., Sydney, New South Wales, Australia........1884
Reichenow, Dr. Anton, Grossbeerenstrasse, 52, Berlin, S.W........1884
Schrenck, Dr. Leopold von, St. Petersburg, Russia........1884
Selys-Longschamps, Baron Edmond de, Liége, Belgium........1884
* Severtzow, Dr. N., Moscow, Russia........1884
Shalow, Dr. Herman, Berlin, Germany........1884
Shelley, Capt. G. E., 6 Tenterden St., Hanover Sq., London........1884
Stevenson, Henry, Unthank's Road, Norwich, England........1884
Theel, Dr. Hjalmar, University of Upsala, Upsala, Sweden........1884
Tristram, Rev. Canon H. B., The College, Durham, England........1884
Tschusi zu Schmidhoffen, Count Victor Ritter von, near Hallein, Salzburg, Austro-Hungary........1884
Wharton, Henry T., 39 St. George's Road, Kilburn, London, N. W. 1884
Zeledon, Sr. Don José C., San José, Costa Rica........1884

ASSOCIATE MEMBERS.

Date of Election.

Adney, E. T., Am. Mus. Nat. Hist., 77th St. and 8th Ave., New York City........1885
Amery, Charles, F., Forest & Stream Pub. Co., 39 Park Row, New York City........1886
Anthony, A. W., Box 37, North Denver, Col........1885
* Atkins, Dr. H. A., Locke, Ingham Co., Mich........1883
Atkins, J. W., Key West, Florida........1887
Averill, C. K., Jr., Santa Clara, N. Y........1885
Avery, Dr. Wm. C., Greensboro, Ala........1887
Bagg, Egbert, 187 Genesee St., Utica, N. Y........1883
Bailey, Vernon, Elk River, Minn........1887
Bailey, Wm. L., 1624 Arch Street, Philadelphia, Pa........1886
Bangs, E. A., Cambridge, Mass........1884
Bangs, Outram, Sears' Building, Boston, Mass........1884
Banks, J. W., Portland, N. B........1887
Barnard, Job, 412 5th St., N. W., Washington, D. C........1886
Beal, F. E. L., Lunenburg, Mass........1887
Beard, Daniel C., 191 Broadway, New York City........1887
Beckham, C. W., Smiths. Inst., Washington, D. C........1883
Benner, Franklin, 16 South 4th St., Minneapolis, Minn........1883
Benson, Lieut. H. C., U. S. A., West Point, N. Y........1886
Berier, DeLagnel, Fort Hamilton, Kings Co., N. Y........1885
Bishop, Louis B., Box 235, New Haven, Conn........1885
Boardman, G. A., Calais, Maine........1884
Bond, Frank, Cheyenne, Wyoming Territory........1887
Brandreth, Franklin, Sing Sing, N. Y........1886

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* Deceased,

Brodie, Dr. William, 325 Parliament St., Toronto, Can............1885
Brown, Herbert, Tucson, Arizona............1885
Browne, Frank C., Framingham, Mass............1883
Bryant, Walter E., Box 2247, San Francisco, Cal............1883
Butler, Amos W., Brookville, Ind............1885
Chadbourne, Arthur P., Cambridge, Mass............1883
Chamberlain, C. W., 51 Lincoln St., Boston, Mass............1885
Chapman, Frank M., Englewood, N. J............1885
Clark, Hubert L., Amherst, Mass............1886
Clark, J. N., Saybrook, Conn............1885
Coale, H. K., 101 Washington St., Chicago, Ill............1883
* Coe, W. W., Portland, Conn............1883
Colby, Edward H., 4130 Drexel Boulevard, Chicago, Ill............1886
Comeau, Nap. A., Godbout, P. Q., Can............1885
Conklin, Wm. A., Dept. of Public Works, 64th St. & 5th Ave., New York City............1885
Cope, Alban, Germantown, Pa............1885
Coues, Elliott Baird, Care Dr. E. Coues, Smiths. Inst., Washington, D. C............1886
Cox, Philip, Newcastle, New Brunswick............1887
Davison, J. L., Lockport, Niagara Co., N. Y............1885
Dickinson, Edwin, Springfield, Mass............1885
Doan, Wm. A., Coatesville, Chester Co., Pa............1885
Drake, John N., Mutual Life Ins. Co., 32 Nassau St., New York City.1886
Drew, Frank M., Genoa, Ill............1885
Durfee, Owen, 46 Maple St., Fall River, Mass............1887
Dutcher, Basil Hicks, Care of Wm. Dutcher, 51 Liberty St., New York City............1886
Dyche, Prof. L. L., Lawrence, Kansas............1886
Eddy, N. A., 509 North Grant St., Bay City, Michigan............1885
Edson, John M., Sinclairville, N. Y............1886
Emerson, W. Otto, Haywards, Cal............1885
Emmett, Wm. T., Pelham, Westchester Co., N. Y............1885
Evermann, Prof. B. W., Terre Haute, Ind............1883
Fairbanks, Hon. Franklin, St. Johnsbury, Vt............1885
Fisher, Wm. Hubbell, 12 Wiggins Block, Cincinnati, Ohio............1883
Forbush, Edw. H., 424 Main St., Worcester, Mass............1887
Foster, Lyman S., 35 Pine St., New York City............1883
Fox, Dr. Wm. H., 1517 L. St., Washington, D. C............1885
Gale, Denis, Gold Hill, Boulder Co., Colorado............1886
Gault, B. T., 175 Dearborn St., Chicago, Ill............1885
Gesner, Rev. A. H., 22 East 131st St., New York City............1885
Gibson, Langdon, Flushing, Queens Co., N. Y............1887
Goodale, Jos. L., 8 Craigie St., Cambridge, Mass............1885
Goss, B. F., Pewaukee, Waukesha Co., Wis............1883
Grant, U. S., 200 West 19th St., Minneapolis, Minn............1885
Green, Morris M., Dept. Agl., Washington, D. C............1887

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* Deceased.

Gregg, Dr. Wm. H., Barryville, N. Y. 1885
Hardy, Miss Fannie P., Brewer, Maine 1886
Hardy, Manly, Brewer, Maine 1883
Hasbrouck, Edwin M., 138 So. Salina St., Syracuse, N. Y. 1887
Hawley, A. H., Care Rev. E. Jones, Los Gatos, Cal 1886
Hazard, R. G., 2d, Peace Dale, R. I. 1885
Hendrickson, W. F., Care the B. B. C. Co., 860 Broadway, New York City 1885
Hicks, Geo. J., New Brighton, Richmond Co., N. Y. 1887
Holbrook, Judge S. T., Norwich, Conn 1885
Holmes, E. S., D. D. S., 103 Ottawa St., Grand Rapids, Mich 1885
Holterhoff, G., Jr., San Diego, Cal 1883
Holzinger, John M., (Curator Museum) State Normal School, Winona, Minn 1887
Hough, Romeyn B., Lowville, N. Y. 1883
* Howland, Snowdon, Newport, R. I. 1883
Hoy, Dr. P. R., Racine, Wis 1883
Hvoslef, Dr. J. C., Lanesboro, Minn 1885
Ingalls, Charles E., East Templeton, Mass 1885
Ingersoll, Albert M., Box 712, San Diego, Cal 1885
Jeffries, Wm. A., 78 Devonshire St., Boston, Mass 1883
Jennings, Allen H., 201 Oak Ave., Baltimore, Md 1886
Johnson, Albert I., Hydeville, Vt 1885
Johnson, Prof. O. B., Seattle, Washington Territory 1885
Jones, Mrs. N. E., Circleville, Ohio 1885
Jordan, Prof. D. S., Bloomington, Ind 1885
Jouy, P. L., Smiths. Inst., Washington, D. C. 1883
Kendall, W. C., Freeport, Cumberland Co., Me 1886
Keyes, Ch., Des Moines, Iowa 1885
Kohn, Gustave, 14 Carondelet St., New Orleans, La 1886
Knowlton, F. H., National Museum, Washington, D. C. 1883
Kumlien, Thure, Care Public Museum, Milwaukee, Wis 1883
Lamb, Charles R., Cambridge, Mass 1885
Lantz, Prof. D. E., Manhattan, Kansas 1885
Lawrence, Robt. B., Mills Building, New York City 1883
Linden, Prof. Charles, 75 E. Eagle St., Buffalo N. Y. 1884
Lloyd, William, San Angelow, Texas 1885
Loomis, Leverett M., Chester, S. C. 1883
Macoum, Prof. J., Geol. and Nat. Hist. Surv., Ottawa, Can 1883
McKay, Prof. A. H., Pictou, Nova Scotia 1885
Marshall, Alfred, 43 Dey St., New York City 1886
Merriam, Miss Florence A., Locust Grove, Lewis Co., N. Y. 1885
Merrill, Harry, Bangor, Maine 1883
Metcalfe, Wm. C., 21 Cortlandt St., New York City 1886
Miller, G. S., Jr., Peterboro, N. Y. 1886

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* Deceased.

MILLER, Mrs. OLIVE THORNE, 271 Quincy St., Brooklyn, N. Y......1887
MINOT, H. D., care of St. Paul, Minneapolis and Manitoba R. R. Co., St. Paul, Minn..1883
MOORE, J. PERCY, 1931 Judson Place, Philadelphia, Pa................1886
MORCOM, G. FREAM, 870 North Park Ave., Chicago, Ill.............1886
MORRIS, GEO. SPENCER, Olney, Philadelphia, Pa...................1887
MURDOCH, JOHN, Smiths. Inst., Washington, D. C..................1883
NEWCOMB, RAYMOND LEE, Salem, Mass..........................1886
NORRIS, J. PARKER, 723 Walnut St., Philadelphia, Pa...............1886
PAINE, AUGUSTUS G., Jr., Champlain Fibre Co., Willsborough, N. Y. 1886
PARK, AUSTIN F., 31 Boardman Building, Troy, N. Y..............1885
PARKER, HARRY G., 204 South 7th St., Philadelphia, Pa............1886
PETERSON, J. P., Luck, Wis......................................1885
PINDAR, L. O., Hickman, Ky......................................1886
POPENOE, Prof. E. A., Manhattan, Kan...........................1886
PRESTON, J. W., Baxter, Iowa....................................1885
RAGSDALE, G. H., Gainsville, Texas...............................1885
RATHBUN, FRANK R., 40 Franklin St., Auburn, N. Y..............1883
RAWSON, CALVIN L., Norwich, Conn............................ 1885
RICE, FRANK L., Evanston, Cook Co., Ill.........................1886
RIKER, C. B., 15 Frankfort St., New York City.....................1885
RILEY, Prof. C. V., U. S. Entomologist, Washington, D. C.........1885
RIVES, Dr. WM. C., Jr., Newport, R. I..............................1885
SAGE, HENRY M., Murand's Road, Albany, N. Y...................1885
SCOTT, W. L., 86 Sparks St., Ottawa, Can..........................1883
SHORES, Dr. E. I., Soldier's Home, Hampton, Va...................1883
* SMALL, EDGAR A., Hagerstown, Md..............................1883
SMITH, HUGH M., U. S. Nat. Museum, Washington, D. C...........1886
SPELMAN, H. M., 62 Sparks St., Cambridge, Mass..................1883
STANTON, Prof. J. Y., Bates College, Lewiston, Me.................1883
STEPHENS, F., Ballena, San Diego Co., Cal.........................1883
STONE, WITMER, Fisher's Lane, Germantown, Pa......................1885
TALBOT, D. H., Sioux City, Iowa..................................1885
TATLOCK, JOHN, Jr., Care North River Safe Deposit Co., New York City..1887
TEPPER, ARTHUR, Flatbush, L. I., N. Y..........................1886
THOMPSON, ERNEST E., 86 Howard St., Toronto, Can...............1883
THOMPSON, FRANK J., Dept. Public Works, 64 St. & 5th Ave., New York City...1885
THORNE, Capt. PLATTE M., 22d Inf. U. S. A., Ft. Lyon, Col........1885
THURBER, E. CARLETON, Box 364, Morristown, N. J................1886
TODD, LOUIS M., Calais, Me.......................................1887
TOPPAN, GEO. L., Room 306, Phœnix Building, 138 Jackson St., Chicago, Ill...1886
TORREY, BRADFORD, Melrose Highlands, Mass.....................1883

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* Deceased.

Townsend, C. H., Smiths. Inst., Washington, D. C.................1883
Treat, Willard E., East Hartford, Conn..........................1885
Trombley, Jerome, Petersburg, Mich.............................1885
Trumbull, Gurdon, Hartford, Conn...............................1884
Turner, Dr. H. M., Hammondville, Essex Co., N. Y...............1885
Turner, Lucien M., Smiths. Inst., Washington, D. C..............1885
Van Cortland, Miss Anne P., Croton Landing, Westchester Co., N. Y...1885
Velie, Dr. J. W., Academy of Sciences, Exposition Building, Chicago, Ill...1886
* Vennor, H. G., Montreal, Can...................................1883
Wadsworth, D. S., Box 1061, Hartford, Conn......................1885
Wakefield, J. R., Dedham, Mass...................................1885
Warren, Dr. B. H., West Chester, Pa..............................1886
Webster, Frederic S., 1345 Pa. Ave., Washington, D. C...........1886
West, Lewis H., Roslyn, Queens Co., N. Y........................1887
* Willard, S. W., West DePere, Wis...............................1883
Wilson, Charles B., Benton Falls, Me............................1885
Wood, A. H., Painted Post, N. Y..................................1887
* Wood, Dr. William, East Windsor Hill, Conn.....................1883
Woodruff, Lewis B., care C. H. Woodruff, 120 Broadway, New York City...1886
Wintle, Ernest D., 11 Hospital St., Montreal, Quebec............1887
Zerega, Louis A., 111 East 72d St., New York City................1884

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* Deceased.

THE AUK:

A QUARTERLY JOURNAL OF

ORNITHOLOGY.

VOL. V. JANUARY, 1888. No. 1.

SPENCER FULLERTON BAIRD.

BY ROBERT RIDGWAY.

[Read before the Fifth Meeting of the American Ornithologists' Union.]

Mr. President and Members of the American Ornithologists' Union: — When asked by the worthy President of our Union to prepare a memorial address upon the life and services to ornithology of our great teacher and leader, Professor Baird, it was with many misgivings that the invitation with which I was thus honored was accepted; for, glad as I am to render what tribute I can to the revered memory of a departed and beloved friend, the sense of my own inability to do justice to such a subject has almost deterred me from the attempt.

The preparation of an address which shall consist essentially of new matter is rendered particularly difficult by the circumstance that there has already been published by Professor G. Brown Goode in Bulletin 20 of the United States National Museum * an excellent biography of Professor Baird, giving in

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* Department of the Interior: | U. S. National Museum. | —23— | Bulletin | of the United States National Museum. | No. 20. | — | Published under the direction of the Smithsonian Institution. | — | Washington: | Government Printing Office. | 1883. |

Comprising—

Bibliographies of American Naturalists. | I. | The Published Writings | of | Spencer Fullerton Baird, | 1843-1882. | By | George Brown Goode. | Assistant Director of the National Museum. | Washington: | Government Printing Office, | 1883. |

An octavo volume of 377 pages, + pages i-xvi (title pages, Prefatory Note, Biographical Sketch, etc.).

detail a history of the principal events and chief results of his life, together with a complete bibliography of his publications. Since the present memoir is intended to deal more particularly with Professor Baird as an ornithologist, the reader is referred for more general information to Professor Goode's admirable 'Biographical Sketch,' * from which are taken most of the chronological data and the occasional quotations in the following prelude to what I have to offer from my own personal knowledge of the life, labors, attainments, and personal qualities of one who in history must hold a place at the head of American naturalists, and in the hearts of those who knew him a place which none other can fill.

Spencer Fullerton Baird was born in Reading, Pennsylvania, February 2, 1823. In 1834 he was sent to a Quaker boarding school at Port Deposit, Maryland, and the following year to the Reading Grammar School. In 1837 he entered Dickinson College, graduating in 1840, at the age of seventeen. The next several years were spent in making natural history studies, and in the study of medicine, including a winter's course of lectures at the College of Physicians and Surgeons, in New York, in 1842, though he never formally completed his medical course. "In 1845 he was chosen professor of natural history in Dickinson College, and in 1846 his duties and emoluments were increased by election to the chair of natural history and chemistry in the same institution. . . . July 5, 1850, he accepted the position of Assistant Secretary of the Smithsonian Institution, and October 3, at the age of twenty-seven years, he entered upon his life work in connection with that foundation—'the increase and diffusion of knowledge among men.'"

Mr. Goode informs us that "his ancestry upon one side was English, upon the other Scotch and German. His paternal grandfather was Samuel Baird, of Pottstown, Pa., a surveyor by profession, whose wife was Rebecca Potts." The Bairds were from Scotland, while the Potts family came from England to Pennsylvania at the close of the seventeenth century. "His great

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* Forming a special chapter of the work before cited, and divided into nine distinct sections, as follows: I. Outline of his public career. II. Honors and dignities. III. Ancestry and development of character. IV. Early friendships and their influences. V. Analysis of his work and the results. VI. Contributions to science and scientific literature. VII. Educational and administrative works. VIII. Work as Commissioner of Fisheries. IX. Epilogue.

grandfather on the mother's side was the Rev. Elihu Spencer of Trenton, one of the war preachers of the Revolution, whose patriotic eloquence was so influential that a price was set on his head by the British government; his daughter married William M. Biddle, a banker, of an English family for many generations established in Pennsylvania, and identified with the banking interests of Philadelphia. Samuel Baird, the father of the subject of this sketch, established himself as a lawyer at Reading, Pennsylvania, and died when his son was ten years old. He was a man of fine culture, a strong thinker, a close observer, and a lover of nature and out-of-door pursuits. His traits were inherited by his children, especially by his sons Spencer and William. The latter, who was the elder, was the first to begin collecting specimens, and as early as 1836 had in hand a collection of the game-birds of Cumberland County. His brother soon became his companion in this pursuit, and six years later they published conjointly a paper entitled 'Descriptions of two species, supposed to be new, of the Genus *Tyrannula* Swainson, found in Cumberland County, Pennsylvania.'" *

Early in 1838 Professor Baird became acquainted with Audubon, "with whom he was for many years in correspondence, and who, in 1842, gave to him the greater part of his collection of birds, including most of his types of new species." In 1841 a very intimate friendship was begun with George N. Lawrence of New York, with John Cassin of Philadelphia, in 1843, and Thomas M. Brewer of Boston, in 1845. These close friendships continued through life, though of these ornithologists only the first named survives him, the others having died before Professor Baird. They were all at one time or another associated with him in his ornithological work.

Although his elder brother had anticipated him by a few years in beginning the formation of a collection, he soon "diverged into other paths," and became a lawyer in Reading, Pa.,† leaving to him the field of ornithology, which he cultivated so assiduously that when the catalogue of his collection‡ was closed, at number 3696, almost every species of bird occurring, regularly or otherwise, in eastern and central Pennsylvania was represented, and in most cases by series of specimens showing the different stages and phases of plumage. This collection, deposited there by Professor Baird when he entered upon his duties as Assistant Secretary of the Smithsonian Institution, is still in the National Museum, of whose ornithological treasures it forms an important element, so many of its specimens having served as the types of Professor Baird's descriptions in his 'Birds of North America' and subsequent works. In it are "specimens of birds prepared by these boys forty-five [now nearly fifty] years ago by a simple process of evisceration, followed by stuffing the body-cavities full of cotton and arsenical soap,"—a method probably adopted by them before they had learned the art of skinning birds.

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* These species are now known as *Empidonax flaviventris* Baird and *E. minimus* Baird.

†Mr. Goode informs us that "at the time of his death, in 1872," he "was United States collector of internal revenue at Reading."

‡This catalogue now constitutes Volume I of the series of National Museum 'Register of Specimens,' now filling twenty-one volumes, and containing more than 112,000 separate entries.

Although his collection was made at a time when the art of taxidermy is generally supposed to have been far behind its present status, especially so far as this country is concerned, the excellent preparation of the specimens, their very precise labelling and perfect preservation, show Professor Baird to have been in every respect the peer of any ornithological collector of the present period. Exposed for more than thirty years to constant handling and everything that could effect their deterioration, they are still in a most excellent state of preservation, and none have lost their labels. I have never known a specimen of Professor Baird's preparation to be attacked by insects, a statement which I am able to make regarding few other collections of which I possess the knowledge to speak. The force of these observations may be better appreciated when it is considered that probably no other collection of skins has ever received so much handling as that made by Professor Baird, every standard work on North American birds published since 1850 having been based essentially upon it, so far as eastern species are concerned. Not only are the specimens prepared and preserved in a manner equalled by only the best of our living collectors, but their labels are fastened with unusual security, and contain very precise data, including scientific name (with authority), sex, age, locality, and date; and, usually, on the reverse side, the total length and stretch of wings, measured before skinning.

The formation of so large and varied a collection of course involved such a vast amount of field work as to remove Professor Baird from the *limbo* of so-called 'closet-naturalists.' How pleasant and instructive to him must have been his out-of-door studies of birds, may be inferred from the extent of his excursions, which are thus described by Mr. Goode:

"In 1841, at the age of eighteen, we find him making an ornithological excursion through the mountains of Pennsylvania, walking four hundred miles in twenty-one days, the last day sixty miles between daylight and rest.* The following year he walked more than 2,200 miles. His fine physique and consequent capacity for work are doubtless due in part to his outdoor life during these years."

Considering Professor Baird's great interest in the study of birds, the number of his ornithological publications is astonishingly small, amounting to only seventy-nine different titles (see Mr. Goode's Bibliography, pp. 250-253). It is, therefore, strikingly evident that his publications must have possessed unusual merit to earn for him so great a reputation as an ornithologist. This reputation was indeed established by the first of his separate works, usually known and quoted as 'The Birds of North America,' though not published under this title until two years after its publication by the Government as Volume IX of the 'Report of Explorations and Surveys, to ascertain the most practicable and economical route for a Railroad from the Mississippi River to the Pacific Ocean.' With the publication, in 1858, of this great quarto volume of more than one thousand pages, began what my distinguished colleague, Professor Coues, has fitly termed the 'Bairdian Period' of American ornithology—a period covering almost thirty years, and characterized by an activity of ornithological research and rapidity of advancement without a parallel in the history of the science. Referring to this great work, in his 'Bibliographical Appendix' to 'Birds of the Colorado Valley' (page 650), Professor Coues says: "It represents the most important single step ever taken in the progress of American ornithology in all that relates to the technicalities. The nomenclature is entirely remodelled from that of the immediately preceding Audubonian period, and for the first time brought abreast of the then existing aspect of the case. . . . The synonymy of the work is more extensive and elaborate and more reliable than any before presented; the compilation was almost entirely original, very few citations having been made at second-hand, and these being indicated by quotation marks. The general text consists of diagnoses or descriptions of each species, with extended and elaborate criticisms, comparisons, and commentary. . . . . The appearance of so great a work, from the hands of a most methodical, learned, and sagacious naturalist, aided by two of the leading ornithologists of America [John Cassin and George N. Lawrence], exerted an influence perhaps stronger and more widely felt than that of any of its predecessors, Audubon's and Wilson's not excepted, and marked an epoch in the history of American ornithology. The synomymy and specific characters, original in this work, have been used again and again by subsequent writers, with various modifications and abridgment, and are in fact a large basis of the technical portion of the subsequent 'History of North American Birds' by Baird, Brewer, and Ridgway. Such a monument of original research is likely to remain for an indefinite period a source of inspiration to lesser writers, while its authority as a work of reference will always endure."

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*Professor Baird informed the writer that he had once, in a pedestrian contest, walked forty miles in eight consecutive hours.

Thus are graphically described the distinctive features of what Mr. Leonhard Stejneger has truthfully termed the Bairdian School * of ornithology, a school strikingly characterized by peculiar exactness in dealing with facts, conciseness in expressing deductions, and careful analysis of the subject in its various bearings—methods so radically different from those of the older 'European School' that, as the esteemed member whom we have just named has already remarked,† conclusions or arguments can be traced back to their source and thus properly weighed, whereas the latter affords no basis for analysis. In other words, as Mr. Stejneger has, in substance, said, the European School requires the investigator to accept an author's statements and conclusions on his personal responsibility alone, while the Bairdian furnishes him with tangible facts from which to take his deductions.

The dominant sources of Professor Baird's training in systematic ornithology are not difficult to trace; in fact, the bases of his classifications are so fully explained or frequently mentioned in his various works as to leave nothing to mere inference. He studied carefully the more advanced systems of his time, and with unerring instinct selected from them their best features,

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* Proc. U. S. Nat. Mus., Vol. VII, 1884, p. 76.

† *Ibid.*, p. 77.

and combined them, together with original ideas, into a classification which was an improvement on its predecessors. Thus, the classification presented in the 'Birds of North America' (1858) is based essentially upon the systems of Sundevall ('Ornithologiskt System,' 1835 and 1843), Cabanis ('Ornithologische Notizen,' 1847), and Keyserling and Blasius ('Wirbelthiere Europas,' 1840). The nomenclature was fixed by methods adopted from G. R. Gray ('List of the Genera of Birds,' etc., 1841-42), to the abandonment of which must be attributed most of the subsequent changes in generic names. In the 'Review' (1864-66) and 'History of North American Birds' (1874), a further concession is made to the classifications of Sundevall and Cabanis by commencing with the Order Passeres and Family Turdidæ instead of the Raptores. The same systems were the foundation of Liljeborg's 'Classification of Birds,' formally adopted by the Smithsonian Institution (through Professor Baird) in 1866, by Messrs. Sclater and Salvin (with certain emendations and amplifications) in 1873, and with still further modifications by the American Ornithologists' Union, in 1886.

The distinctive features of the 'Bairdian School' were still further developed by the publication, in 1864-66, of the 'Review of American Birds,' a work of unequalled merit, displaying in their perfection Professor Baird's wonderful powers of analysis and synthesis, so strongly combined in his treatment of difficult problems. Unfortunately for ornithology, this work was but fairly begun, only a single volume (an octavo of 450 pages) being published. The cause of its discontinuance is not definitely known to the present writer, but it may have been the intervention of the 'Ornithology of California,'* a work based on the manuscript notes of Dr. J. G. Cooper, but edited by Professor Baird, who also superintended its publication, and the 'History of North American Birds,'† material for which was already being arranged, besides other literary work and the increasing pressure of administrative duties. Whatever the cause, however, its discontinuance is to be regretted, since its completion would have given us an invaluable guide to the study of Neotropical birds. I have it on good authority, that no single work on American ornithology has made so profound an impression on European ornithologists as Professor Baird's 'Review'; and, by the same authority, I am permitted to state that he — a European by birth and rearing — became an American citizen through its influence.

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* Geological Survey of California. | J. D. Whitney, State Geologist. | — | Ornithology. | Volume I. | Land Birds. | Edited by S. F. Baird, | from the manuscript and notes of | J. G. Cooper. | Published by authority of the Legislature. | 1870. |

A royal octavo volume of 592 pages, illustrated by numerous woodcuts, some colored by hand.

† A | History | of North American Birds | by | S. F. Baird, T. M. Brewer, and R. Ridgway | Land Birds | Illustrated by 64 colored plates and 593 woodcuts | volume I. | [III]. | [Vignette.] | Boston | Little, Brown, and Company | 1874. | 3 vols., small quarto, vol. I. pp. i-xxviii, 1-596, i-vi, cuts, and pll. i-xxvi, Vol. II, 3 pll. pp. 1-590, i-vi, cuts, and pll. xvii-lvi, Vol. III, 3 pll., pp. 1-560, 1 l., i-xxviii, cuts, and pll. lvii-lxix.

In the preface to the present writer's latest work on American ornithology* the author is proud to mention that the book was "originally projected by Professor Spencer F. Baird . . . . whose works represent the highest type of systematic ornithology and have furnished the model from which the younger generation of ornithologists have drawn their inspiration"; and that his friendly advice and suggestions had rendered comparatively easy the performance of a task which under less favorable auspices would have been far more difficult of accomplishment—acknowledgments which but faintly express the author's obligations to his tutor.

In commenting upon the value of Professor Baird's contributions to scientific literature, Professor Goode remarks that "no one not living in the present can form an accurate idea of the personal influence of a leader upon his associates and upon the progress of thought in his special department, nor can such an influence as this well be set down in words. This influence is apparently due not only to extraordinary skill in organization, to great power of application and concentration of thought constantly applied, and to a philosophical and comprehensive mind, but to an entire and self-sacrificing devotion to the interests of his own work and that of others."

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* A Manual | of | North American Birds. | By | Robert Ridgway. | — | Illustrated by 464 outline drawings of the | generic characters. | — | Philadelphia: | J. B. Lippincott Company. | 1887 | Royal octavo. Frontispiece (portrait of Professor Baird), pp. i-xi, 1-631, pll. i-cxxiv.

The history of this work, briefly stated, is as follows:

Before the printing of the 'History of North American Birds' had been completed, Professor Baird had under way a smaller but very useful work, consisting of the analytical or synoptical tables of the larger work, improved and somewhat enlarged by the introduction of brief diagnoses of the nests and eggs of the different species, together with the English names. This book, of which there exists only a single copy, and that not perfect, was completed early in 1874. Its title is 'Outlines of American Ornithology by S. F. Baird and R. Ridgway. Part I. Land Birds.' For some reason the work was never published, and the electrotype plates were destroyed. This work, in which the present writer had some share, was the embryo which, after twelve years' incubation, finally developed into the more comprehensive 'Manual of North American Birds,' in the preparation of which, however, Professor Baird took no active part, though it is scarcely necessary to say that he was much interested in its progress, even almost to the close of his life, which ended shortly after the work had been printed, but before it could be published. It has been a matter of deep regret to the author, that Professor Baird could not have had a share in the preparation of the book, and still more that he could not have lived to enjoy the satisfaction of seeing it published.

But it is not only through his published works and personal influence with his associates and pupils, that Professor Baird was powerful in the development and advancement of ornithology in America. His position as head of the Smithsonian Institution and the National Museum gave him peculiar opportunities for putting into practical shape his plans for a thorough exploration of little known portions of the continent. "To his influence with the Government authorities is due the excellent field-work done in connection with nearly all the Government Surveys and the Signal Service Bureau, from the first inception of the various Pacific Railroad Surveys to the present time." * If the exploration of a particular field suggested itself to him, he rarely failed to find, sooner or later, means to accomplish the object in view; no opportunity for making use of, or securing the coöperation of, other departments of the Government in maintaining explorations which he had himself instigated or organized was ever neglected, and for such opportunities he was constantly alert. His success in thus promoting the cause of science was, however, by no means wholly due to the importance of his official positions, his personal zeal and influence often accomplishing what might not otherwise have been successful.

The sterling qualities of mind and heart which were so conspicuous in Professor Baird's character were as well known and as highly appreciated abroad as at home. As an illustration of this fact, I quote the following obituary notice in 'Nature,' for August 25, by Mr. R. Bowdler Sharpe, Senior Assistant, Department of Zoölogy, in the British Museum, well known as an ornithologist of eminence:

"By Englishmen who knew Professor Baird personally, the loss must be especially felt, but there are many who never had met

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* Editorial, in 'The Auk,' Oct. 1887, p. 358.

him in the flesh, to whom the news of his decease must come as that of a dear friend. As one of the latter class we venture to express our sympathy with our scientific brethren in America on the decease of one of their most eminent and respected colleagues. As chief of the Smithsonian Institution, Professor Baird possessed a power of conferring benefits on the world of science exercised by few directors of public museums, and the manner in which he utilized these powers has resulted not only in the wonderful success of the United States National Museum under his direction, but in the enrichment of many other museums which were in friendly intercourse with the Smithsonian Institution. We know by experience that the British Museum is indebted beyond measure to Professor Baird, and we need only refer to the recent volumes of the 'Catalogue of Birds' to show how much our National Museum owes to the sister Museum in America for hearty co-operation. We had only to write and express our wants, and immediately every effort was made, by Professor Baird's instructions, to supply all the desiderata in our ornithological collection, and this without the slightest demand for an equivalent exchange, though, of course, in the case of the British Museum, every effort was made to reciprocate the good feeling shown by the great American Museum. There must be many private collectors in this country who will indorse our acknowledgments to Professor Baird for the unrivalled liberality which he has always shown in the advancement of the studies of every ornithologist who invoked his aid. . . . . We may add that, during an experience of twenty years, we have never heard from any ornithologist, European or American, a single unkind word concerning Professor Baird, either in his public or private capacity. This is something to say in this age of jealousies and backbitings."

Indeed, it may with truth be said that so widespread, so nearly universal, has been his influence, that few there are, if any, among his contemporaries who have not had occasion to record their sense of obligation for his aid, his counsel, or his noble example. We all delight to acknowledge him our great teacher, and in doing so do honor to ourselves.

A very marked trait of Professor Baird's character was his aversion to personal controversy, which was so decided that under no circumstances could he be drawn into one. It was his invariable rule to answer his critics by a dignified silence, no matter how great the provocation to reply, or how strong a case his side presented; and in every instance known to the writer it has transpired that the ground taken or the statements made by Professor Baird have stood the test of time. "One of his striking characteristics was that he would never quarrel and never have anything to do with the quarrels of others. He was always for peace." *

As a public officer, no man was more conscientiously devoted to his duty or faithful in its performance; and he administered the complicated affairs of three distinct and important establishments with an ability which commanded admiration, although it was plainly to be seen that the responsibilities were too great for any single person to bear. His capacity for work was enormous, and he was constantly occupied. He enjoyed work, and it was not his industry which hurt him; but the harassing cares of his public trusts and the weight of their responsibility were too much for even his powerful physique to endure, and he gave way under the strain.

No man was more easily approached than Professor Baird, or greeted a new acquaintance more cordially. His reception of young persons, especially those with an inclination for natural history, was particularly charming, at once relieving them from embarrassment and captivating them by his unassuming manners, his genialty, and frankness.

Trusting that he does not introduce too prominently his own personality into this memoir, the writer offers the following brief outline of his personal acquaintance with Professor Baird, as being of probable interest to members of the Union, and as giving an insight into the character of his lamented friend.

Until near the middle of the year 1864, the writer, then a lad in his fourteenth year, was unacquainted with the name of any living naturalist, or with any books on natural history except such general or superficial compilations as Goldsmith's 'Animated Nature,' a history of the United States (author forgotten) which included a chapter or two on the natural history, and Goodrich's 'Animal Kingdom'—works which, although supplying much valuable information to the general reader, were of course wholly inadequate to the wants of a special student. A lady resident in the town learned of his difficulties, and sug-

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* Professor Otis T. Mason, in 'Washington Evening Star' of August 20.

gested that by writing to the Commissioner of Patents in Washington he might be able to obtain the correct names of birds, supplementing her fortunate suggestion by the gift of an envelope bearing the printed address of a former Commissioner of Patents. A letter was written, and with it was enclosed a colored drawing, life size, of a pair of Purple Finches ("Roseate Grosbeak, *Loxia rosea*," of the incipient ornithologist) perched upon a dry stalk of the great ragweed (*Ambrosia trifida*), the seeds of which in winter constitute the principal food of the bird in that locality. An answer was awaited with great impatience, but in due time was received, the following being an exact copy:

"No. 5664. SMITHSONIAN INSTITUTION,
Washington, D. C., June 23, 1864.

"DEAR SIR:

"The present Commissioner of Patents (Mr. Holloway, not Mr. Bishop), has sent me your letter, as more conversant with the subject of North American Birds than himself. I have read it with interest and much pleasure, as showing an unusual degree of ability as an artist, and of intelligent attention to a scientific subject. I had no difficulty in recognizing the bird you sent, and was much pleased to see that you had given all the essential features of form and color with much accuracy.

"The bird is the Purple Finch (*Carpodacus purpureus*). I send you a catalogue of the birds of North America, and some other pamphlets.* If you can procure the 9th volume of the Pacific Railroad Reports, you will find descriptions of all the North American birds, by myself.

"I will be glad to hear from you and to render you any aid by naming your drawings, or in any other way. You must learn the scientific names of the birds, and thus be able to talk and write about them with persons not knowing the English names used in your part of the country.

"Let me know what kind of eggs you have.

"Very truly yours,
(Signed) "SPENCER F. BAIRD.
"Asst. Sec. S. I."

"ROBERT RIDGWAY,
"*Mt. Carmel,*
"*Illinois.*"

The above letter was a revelation to the recipient, who, in his isolation, was ignorant of the existence of any one but himself engaged in the study of birds. He had read of Audubon and

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*These were the various circulars of instruction for collecting and preserving specimens of natural history, published by the Smithsonian Institution, and well known to naturalists in this country.

Wilson, and Nuttall, and Bonaparte, but these he knew were all dead. The profound impression produced by the letter and the hope that it gave, may be imagined. From this commencement arose a correspondence which to the present writer was a constant source of delight and instruction, and to which he looks back with feelings that cannot be expressed. It was not until the early part of 1867, nearly three years later, that the writer obtained a copy of the text of 'Birds of North America' (Volume IX, Pacific R. R. Report), and it therefore became necessary for him to continue the sending of drawings and descriptions in order to obtain the much desired identifications. In replying to the writer's numerous letters of this character, Professor Baird always wrote most kindly and encouragingly, replying to multitudinous queries as fully as the arduous duties of his official position would allow. To mention all the useful hints which he gave would require too much space here, but the following are selected as samples:

"I would advise you to spend most of your leisure time in practising drawing of birds and mammals from nature and from life, so as to acquire a facility in seizing a temporary attitude and transferring it to paper. Make these sketches continually whenever you have the opportunity, so as to secure the more practice. A certain number of these drawings you may work up in their minutest details, and it will be a good exercise to draw the feathers of a single wing, as well as bill, feet, etc., and skulls of mammals. The object should be in drawing form to secure artistic elegance and at the same time a minute, almost microscopic, accuracy in matters of detail, as far as they can be represented.

"The drawings you have sent are too fragmentary to show what your present abilities as an artist are, and I would rather see some full-sized figures . . . ."

"It will not be necessary to spend much time in practising coloring, as this is rather a mechanical work, easily acquired by practice. The first object should be to obtain the highest perfection in drawing the form and in filling out minute details." (From a letter dated December 24, 1865.)

In a letter dated January 13, 1867, he gave this valuable advice as to writing field-notes: "Let me give you one hint in regard to making notes on the specimens. *Never write on both sides* *of the same leaf*. In this way it will be possible to cut apart your notes into slips and assort with others of same purport, so as to rearrange systematically. Do this for your own notes as well as those you send me: You will often realize the advantage of so doing."

It is unnecessary here to go into details concerning events subsequent to the beginning of this correspondence. Suffice it to say that in all his relations with Professor Baird the writer remembers, with deepest gratitude and reverence, his uniform great kindness of heart, his genial manners, his wise counsels, and his steadfast friendship; and, with others who were so fortunate as to have enjoyed the privilege of his acquaintance, he mourns a departed friend and teacher, whose loss is irreparable.

UPPER MISSOURI RIVER BIRDS.

BY ROBERT S. WILLIAMS.

IT is a bright morning on the 9th of May, and, with gun and game bag, I start out for a walk along the Missouri River above town (Great Falls, Montana). The wind, which has been blowing almost a gale for several days past, is this morning scarcely perceptible; a few fleecy clouds are in the clear sky above, and the prairies are rapidly changing their dull colors to summer tints of green. At a distance, the scattered cotton-woods stand up as bare and gray as in the depth of winter, and the willows scarcely show signs of returning life, except in the warm, sunny nooks, where they are rapidly assuming the misty green that will shortly envelop them and change their whole appearance.

On all sides the birds are doing their best to proclaim the arrival of another spring. In the distance are heard the loud and long-drawn out whistlings of the Curlew as he wings his way here and there over the prairie. Close at hand are Chestnut-collared and McCown's Longspurs uttering their pleasing warbles. The latter bird is constantly flying rapidly upward for a short distance, then with wings motionless above the back, it sails slowly to the ground, reminding one of a huge butterfly, and all the time singing so vigorously that one might suppose it had forgotten even the motion of its wings in directing all its energies to music. Shorelarks are about, with young almost able to fly, and the loud and well known song of the Meadowlark is heard from all directions, as the birds pause for an instant on some rock or post, or fly after their mates. A bird not so commonly observed, yet quite abundant, is the Missouri Skylark (*Anthus spraguei*), and its song, as usually noted far overhead, would scarcely attract attention from any casual observer, for all its wonderful melody when clearly heard. The notes more closely resemble those of Swainson's Thrush than of any other bird I am acquainted with, but the song is louder and more prolonged. Still another bird of the prairies, oftener heard than seen, is the Western Yellow-winged Sparrow. It is often so shy that one has great difficulty in approaching near enough for a shot. These last two species are recent arrivals from the south. The earliest date I have for the appearance of either is May 8, 1885.

Thus far the birds mentioned are observed while passing over about a mile of prairie, before reaching the river. As I approach some willows by the water's edge, the mellow, ringing song of the Ruby-crowned Kinglet falls on the ear, and directly the bird itself appears flitting about among the lighter sprigs. This species arrives during the first week of May, and breeds commonly in the mountains, but is never seen in the valleys except in migration. Its relative, the Golden-crested, I have only noted in the fall migration, and it is apparently a rare bird at all times. Brewer's Blackbirds, along with Crow Blackbirds and Cowbirds, stop their noise and scolding for an instant as I approach near them. Soon the willows are passed and I proceed along the river bank, which extends only a few feet above the water for some half a mile, to where the surface becomes broken by low sand hills and ridges that run parallel with the river for some distance, and are covered with a scant growth of box elder, cotton-wood, wild cherry, etc. Just before reaching the sand hills I notice three birds out in the river. They are making towards me and I hastily get behind a hummock where it is easy to watch their movements. From their color, large size, and especially the long neck held so upright, I conclude they must be the Western Grebe (*Æchmophorus occidentalis*), and such indeed they prove. While they are still far out of gun shot an American

Golden-eye comes flying low down over the water and plunges in, not twenty yards away. This bird is quite common here in spring. I have seen them as late as the 17th of May, but I have never noticed them in mid-winter. Barrow's Golden-eye is the common winter bird about the falls, etc., mostly leaving by the middle of April. Meantime the Grebes have been constantly approaching. Waiting till the one nearest shore dives I run down to the water's edge, while the Golden-eye hastily betakes himself off. The Grebe shortly coming to the surface affords a fair shot, and a single pellet passing through the neck kills him instantly. A second shot at the others simply causes them to drop suddenly out of sight, and they come up far out in the river. Wind and current shortly bringing the prize to land I dispose of it, and soon reach the brush and timber above. Violet-green and White-bellied Swallows occasionally pass overhead. The two species arrive together, within a day or two of the first of May, and are constantly associated throughout the season. Both have the same irregular flight, varying constantly in direction and swiftness, and were it not for the apparently white rump of the Violet-green, the two species would not be so easily distinguished on the wing.

Red-shafted Flickers are abundant. They have already paired and are busily arranging their summer homes. Only one other species of this family, a single Downy Woodpecker, was noted during the morning, although six or seven species are more or less common in the mountains. A few Yellow-rumped Warblers are flying about singly here and there in the cotton-woods and willows. The specimen shot proved to be *Dendroica coronata*, although in my experience *D. auduboni* is much the commoner bird of the two in the Territory, and is the one usually breeding in the mountains. Two Yellow Warblers (*D. æstiva*) are noted. They have doubtless just arrived, and in a short time the species will become common; also two Brown Thrushes are heard, for the first time this year. Other recent arrivals are the Western House Wren and Towhee (*Pipilo maculatus arcticus*).

Hearing a great noise and stir out in the river I walk to the bank and look across, and there, near a sand bar, two or three hundred yards away, is a large flock of Avocets. They are wheeling about, alighting first on the bar, then in the water, keeping up a constant noisy piping. A few birds, at least, remain about alkali ponds on the prairies during the summer. A little farther up the river a flock of Shoveler Ducks fly past. Their every note and action is full of vigor, as they drop suddenly to within a few feet of the water, or as quickly rise upward, or wheel to one side, as if flight to them were only play. Farther on and the mellow, piping notes of some Green-winged Teal are heard from a bit of quiet water. The birds are so busy feeding that they do not notice my approach till within a few rods of them, when they quickly rise from the water and are off. Flocks of the males are to be found here commonly throughout the winter. As compared with this species, the Blue-winged Teal is quite rare, and is never found here in winter, I believe.

During the morning several pairs of Canada Geese are seen flying low over the prairies, to or from their feeding grounds. Small numbers of them remain throughout the year, and these apparently breed very early, beginning to lay even toward the latter part of March. Where the cotton-wood timber is heavy, the nest is doubtless sometimes placed in trees. I have seen the birds alight on large limbs thirty or forty feet above ground, although I never observed the nest in such places. The Mallard is another winter bird, many males, at least, remaining during the coldest weather. I have obtained their nest, with mostly fresh eggs, as late as May 24, though probably they sometimes breed much earlier.

As one of the small islands in this part of the river is passed, the cooing of many Turtle Doves comes across the water. Sometimes two birds begin and continue their notes in unison to the close, producing a curious sort of duet. The Doves arrived this year about May 5. They are common in nearly all the valleys, but I have never seen them in flocks of any size. Among Sparrows that inhabit timber and brush, the Intermediate White-crowned is abundant now. A week or so later none are found outside the mountains, where they breed commonly. The White-throated Sparrow, so like this in many of its habits, I have never seen in Montana except on one occasion. September 18, 1886, I observed a few along with the preceding species, in brush on lower Sun River. The only specimen shot was so badly torn by the charge that I was unable to preserve the skin. Song Sparrows are occasionally heard singing from some brush pile or thicket. They arrive early, April or thereabout, and Grass Finches, which appear about a month later, are common everywhere. I will mention two other Sparrows, specimens of which I obtained this spring, though none were noted on the present occasion. One is the Fox-colored Sparrow, which seems to be of uncommon occurrence here, and the other Lincoln's Sparrow. Both are so retiring in their habits as to be readily overlooked. I have shot but two or three specimens of each in the Territory.

On returning to town shortly before noon, little further of interest is observed, as the ground traversed is about the same. It is still early for many of the smaller birds, some of which do not arrive till about the first of June.

AN ANNOTATED LIST OF BIRDS BREEDING IN THE DISTRICT OF COLUMBIA.

BY CHARLES W. RICHMOND.

IN treating of the fauna and flora of the District of Columbia, authors generally extend the limits twenty miles from the Capitol in all directions. Owing to the fact that his experience does not extend far beyond the District limits proper, the writer has preferred to restrict the present notes, as much as possible, to within that boundary. Some species are left out, therefore, which would otherwise be included. Among such birds are the Bald Eagle (*Haliæetus leucocephalus*), the Wild Turkey (*Meleagris gallopavo*), and the Wood Duck (*Aix sponsa*), which are known to breed at Mt. Vernon, Va., about fourteen miles from Washington; the Turkey Vulture (*Cathartes aura*), and the Great Horned Owl (*Bubo virginianus*), breeding near Wilson's Station, Md., about seven miles from here, as the writer is informed by Mr. Frank White. The Red-tailed Hawk (*Buteo borealis*) has been found breeding at Sandy Spring, Md., about eighteen miles distant, by Dr. A. K. Fisher.

Mr. Hugh M. Smith kindly contributes the following interesting note on the breeding of the American Scaup Duck (*Aythya* *marila nearctica*) at Mt. Vernon: "In May, 1881, a female duck was often noticed swimming to and from a marshy tract near Mt. Vernon Springs, and in June was flushed from the nest by Mr. L. P. Pumphrey, an experienced gunner and duck shooter. The nest contained fourteen eggs, which were not disturbed. Later in the same month they were found to have hatched (with the exception of one), and the young ducks were transferred to the care of a hen. The ducks grew, and when old enough to fly, went off one at a time and never returned. At no time was the male bird seen. Mr. Pumphrey's identification of the bird was complete, and his great familiarity with the birds of the river makes his *dictum* reliable." This instance, of course, was purely accidental, the bird probably being wounded and obliged to remain where it was discovered.

Three birds given as breeding in 'Avifauna Columbiana,' by Drs. Coues and Prentiss, are here omitted, viz: Brown Creeper (*Certhia familiaris americana*), Tree Swallow (*Tachycineta bicolor*), and Bronzed Grackle (*Quiscalus quiscula æneus*). The first is a winter resident, being common from the middle of October until the first week in April. The Tree Swallow is said to be "a common summer resident," whereas it does not occur as such, although small scattered flocks of migrants are often seen flying over the city during the latter part of July. The Bronzed Grackle is little more than a straggler, and individuals passing through here hardly remain to breed. However, the writer has a male, taken on April 17, 1886, a date when ordinary *quiscula* is nesting, and a female shot on April 6, 1887, about the time the Purple Grackles are laying their first eggs. Both of these birds were taken in a grove of cedars occupied by a colony of Purple Grackles.

The writer desires to thank Mr. H. W. Henshaw, Mr. Robert Ridgway, and others whose names are mentioned in connection with the following notes, for information and assistance in preparing the list. The notes apply to the breeding season only.

1. **Botaurus exilis.** LEAST BITTERN.—Rare. Has been seen here in summer.

2. **Ardea egretta.** AMERICAN EGRET.—Mr. Wm. Palmer has known this bird to nest in Arlington Cemetery.

3. **Ardea virescens.** GREEN HERON.—Quite common. Several pairs nest along the Eastern Branch every year.

4. **Nycticorax nycticorax nævius.** BLACK-CROWNED NIGHT HERON.—Same as *Ardea egretta*.

5 **Rallus elegans.** KING RAIL.—A nest found June 15, 1887, in a marsh opposite Long Bridge, by Mr. Melville Thompson, contained eleven eggs, partly incubated. This is the only nest found here, to the writer's knowledge.

6. **Rallus virginianus.** VIRGINIA RAIL.—This Rail and the following have been seen here during the nesting season, and both undoubtedly breed.

7. **Porzana carolina.** SORA.

8. **Philohela minor.** WOODCOCK.—Rare. Mr. Henshaw informs the writer that the Woodcock used to nest quite commonly in the vicinity of Washington, before it was killed off by gunners.

9. **Actitis macularia.** SPOTTED SANDPIPER.—Rather uncommon. Have never found the nest here, but have shot young birds.

10. **Ægialitis vocifera.** KILLDEER.—Rather rare. Sometimes seen or heard during the summer.

11. **Colinus virginianus.** BOB-WHITE.—Quite rare.

12. **Bonasa umbellus.** RUFFED GROUSE —Rare. Both this bird and the preceding are abundant in the surrounding country in Maryland and Virginia.

13. **Zenaidura macroura.** MOURNING DOVE.—Common. Have found eggs as early as April 18. Nests generally in cedar thickets.

14. **Accipiter velox.** SHARP-SHINNED HAWK.—Rare. A nest with four eggs was found by Mr. Louis McCormick in Alexandria Co., Va., about six miles from Washington, on May 20, 1882.

15. **Accipiter cooperi.** COOPER'S HAWK.—Rare. Mr. Hugh M. Smith has two eggs taken May 8, 1865.

16. **Buteo lineatus.** RED-SHOULDERED HAWK.—Mr. Henshaw has found several nests.

17. **Buteo latissimus.** BROAD-WINGED HAWK.—Not common. Mr. Henshaw has found it breeding.

18. **Falco sparverius.** AMERICAN SPARROW HAWK.—Rare.

19. **Strix pratincola.** AMERICAN BARN OWL.—Very rare. The National Museum collection contains two eggs of this bird taken from the Smithsonian towers, one in June, 1861, and the other June 1, 1865.

20. **Asio wilsonianus.** AMERICAN LONG-EARED OWL.—Rare. This species is given a place on the authority of Mr. Henshaw, who says that it breeds here.

21. **Syrnium nebulosum.** BARRED OWL.—Rare. This Owl breeds in Maryland and Virginia, and it has been seen here in June.

22. **Megascops asio.** SCREECH OWL.—Common. A nest found April 24, contained eggs about to hatch, and young birds fully fledged and flying about have been taken on May 30.

23. **Coccyzus americanus.** YELLOW-BILLED CUCKOO.—Common. Eggs found first week in June. Nests generally in thick, dark woods with abundant undergrowth.

24. **Coccyzus erythrophthalmus.** BLACK-BILLED CUCKOO.—Rare.

25. **Ceryle alcyon.** BELTED KINGFISHER.—Uncommon.

26. **Dryobates villosus.** HAIRY WOODPECKER.—Very rare. Mr. Henshaw saw a pair of these birds late in May, 1887, and judged from their actions that they were nesting.

27. **Dryobates pubescens.** DOWNY WOODPECKER.—Rather common.

28. **Melanerpes erythrocephalus.** RED-HEADED WOODPECKER.—Common. Eggs found second week in May.

29. **Melanerpes carolinus.** RED-BELLIED WOODPECKER.—Very rare. Mr. Henshaw saw an individual about the last of May, 1887.

30. **Colaptes auratus.** FLICKER.—Common. Eggs found second week in May.

31. **Antrostomus vociferus.** WHIP-POOR-WILL.—Quite rare, but common in adjacent portions of Maryland and Virginia.

32. **Chordeiles virginianus.** NIGHTHAWK.—Uncommon. Have never found the nest here, but see the birds all through the summer.

33. **Chætura pelagica.** CHIMNEY SWIFT.—Abundant. Eggs found the second week in June.

34. **Trochilus colubris.** RUBY-THROATED HUMMINGBIRD.—Uncommon. Begins nesting the last week in May.

35. **Tyrannus tyrannus.** KINGBIRD.—Quite common.

36. **Myiarchus crinitus.** CRESTED FLYCATCHER.—Common. Have found only one nest containing the usual cast-off snake skin. Eggs found the first week in June.

37. **Sayornis phœbe.** PHŒBE.—Common. An early breeder as compared with other species of the Tyrannidæ nesting here. Eggs found first week in May.

38. **Contopus virens.** WOOD PEWEE.—Common. Begins nesting first week in June.

39. **Empidonax acadicus.** ACADIAN FLYCATCHER.—Common. Eggs deposited second week in June; never more than three are found in one nest. The bird is always found in a solitary part of the woods, where few other birds are seen. Its nest is placed half-pendant at the end of a horizontal branch, generally so low that it can be reached without climbing; sometimes, however, it is twenty feet or more from the ground. The eggs resemble those of *Contopus virens*, but are slightly smaller; the ground is of a deeper cream color, and the spots, not so numerous or so large as in *virens*, are reddish brown. The note of *acadicus* is a sharp *peep*.

40. **Cyanocitta cristata.** BLUE JAY.—Rare. Common in the adjoining country.

41. **Corvus americanus.** AMERICAN CROW.—Abundant. Have taken full clutches as early as March 27. Generally five or six eggs are found in a nest.

42. **Corvus ossifragus.** FISH CROW.—Not common. Mr. Henshaw has found it nesting.

43. **Molothrus ater.** COWBIRD.—Rare. Prior to 1884 the writer frequently found eggs of this parasite in nests of *Vireo olivaceus*, *Dendroica*

æstiva, *D. discolor*, and other small birds, but since then has not found one. *Molothrus* generally lays its eggs in nests of birds smaller than itself, and which lay similar spotted eggs. Have occasionally found its egg in the nest of the Chipping Sparrow, and once in a Bluebird's nest situated in a hole in a fence post. This nest contained two eggs of the Cowbird, almost exact counterparts of each other, and probably laid by the same bird.

44. **Agelaius phœniceus.** RED-WINGED BLACKBIRD.—Common.

45. **Sturnella magna.** MEADOWLARK.—Common.

46. **Icterus spurius.** ORCHARD ORIOLE.—Uncommon.

47. **Icterus galbula.** BALTIMORE ORIOLE.—Very uncommon.

48. **Quiscalus quiscula.** PURPLE GRACKLE. — Abundant. Breeds in communities. Nests exclusively in cedar or other coniferous trees. Eggs may be found the first week in April, five or six being laid. 'Runt' eggs are sometimes found. Two broods are raised, perhaps three.

49. **Passer domesticus.** EUROPEAN HOUSE SPARROW. — This little renegade is excessively abundant. They are frequently seen building nests during mild days in winter, and rear four or five broods a year, probably more. In June, large numbers, mostly young birds, congregate about grain fields and along country roads, where they remain until harvest time is over. Eggs generally five or six; nest lavishly lined with feathers.

50. **Loxia curvirostra minor.** AMERICAN CROSSBILL. — Extremely rare. An adult male accompanied by one young bird was seen by Mr. Hugh M. Smith on May 17, 1885. This species has been known to breed in Maryland. (See 'The Auk,' Vol. I, p. 292, and Vol. II, p. 379.)

51. **Spinus tristis.** AMERICAN GOLDFINCH. — Very common. A late breeder, hardly beginning to nest before the middle of July. Mr. Smith has taken eggs as late as August 30. Eggs five or six.

52. **Poocætes gramineus.** VESPER SPARROW.—Rather common.

53. **Ammodramus savannarum passerinus.** GRASSHOPPER SPARROW.—Common.

54. **Ammodramus henslowii.** HENSLOW'S SPARROW.—Very common around Falls Church, Va., a short distance from Washington.

55. **Spizella socialis.** CHIPPING SPARROW. — Very common. Three broods are raised.

56. **Spizella pusilla.** FIELD SPARROW. — Abundant. Often nests on the ground. Three broods are reared.

57. **Melospiza fasciata.** SONG SPARROW. — Abundant. Commonly nests on the ground and in low bushes. One nest found was in a cedar, seven feet from the ground.

58. **Pipilo erythrophthalmus.** TOWHEE. — Common. Three or four eggs generally constitute a clutch.

59. **Cardinalis cardinalis.** CARDINAL.—Common. Have never found more than three eggs in a nest.

60. **Guiraca cærulea.** BLUE GROSBEAK.—Rare.

61. **Passerina cyanea.** INDIGO BUNTING.—Common. Begins nesting first week in June. Four eggs are generally laid.

62. **Spiza americana.** DICKCISSEL. — Extremely rare. This bird is said to have been abundant, formerly, but it appears to have withdrawn almost entirely from this vicinity. A male was seen by Mr. Henshaw about the last of May, 1887. It was very likely nesting.

63. **Piranga erythromelas.** SCARLET TANAGER. — Quite rare. Mr. W. F. Roberts has taken young birds.

64. **Piranga rubra.** SUMMER TANAGER.—Very uncommon. Found a nest July 4, 1885, containing three fresh eggs.

65. **Progne subis.** PURPLE MARTIN.—Rather common. There are several nesting sites where the Martins still 'hold the fort,' despite the English Sparrows, notably the Masonic Temple and the Post Office Department building.

66. **Petrochelidon lunifrons.** CLIFF SWALLOW.—Rare.

67. **Chelidon erythrogaster.** BARN SWALLOW.—Very common. Begins nesting about the third week in May.

68. **Clivicola riparia.** BANK SWALLOW.—Very common.

69. **Stelgidopteryx serripennis.** ROUGH-WINGED SWALLOW. — Common. Numbers of these birds nest along the river in crevices among the rocks. I know of a small colony that frequents a stone culvert, over which is a railroad track, and through which a small stream passes. This culvert is built of rough uncut stones, and presents innumerable fine nesting sites for the Swallows. One nest found here was placed in a crevice about one foot above running water, and contained young. Six or seven eggs are laid, and first clutches are completed by May 17. A set of seven eggs found during June, 1887, contained six of this species and one of the Barn Swallow.

70. **Ampelis cedrorum.** CEDAR WAXWING.—Common. The Cedarbird does not nest till late in the season, and is sometimes eccentric about choosing a nesting place. A nest found within the city limits was situated in a lamp post, and contained one egg. It will forsake its nest on the slightest provocation, even after laying one or more eggs.

71. **Vireo olivaceus.** RED-EYED VIREO. — Abundant. The nesting season usually begins about the last week in May. A nest, found by Mr. M. Thompson, was in a small shrub only a foot and a half from the ground. One egg of a set of three in the possession of the writer, is unspotted.

72. **Vireo gilvus.** WARBLING VIREO.—Uncommon. The rarest of the breeding Vireos.

73. **Vireo flavifrons.** YELLOW-THROATED VIREO.—Rather common. It appears to nest much earlier than *olivaceus.*

74. **Vireo noveboracensis.** WHITE-EYED VIREO.—Rather common.

75. **Mniotilta varia.** BLACK-AND-WHITE WARBLER.—Common. Have found fully fledged young by June 14.

76. **Helmitherus vermivorus.** WORM-EATING WARBLER.—Not rare. Discovered a nest on a steep hillside bordering on Rock Creek, May 31, 1885, containing six eggs, well incubated. The nest was large for the size of the bird, and very loosely constructed. The outer part was com-

posed of skeleton leaves, and the lining was of hair moss (*Polytrichum*). On the 14th of June the same year, another nest, containing five young birds half-fledged, was found in the same locality. The next year a deserted nest was found, corresponding in size and material with the other two. June 5, 1887, Mr. M. Thompson found a nest with five half-grown young. The nest was on a hillside facing the west, as were the other three, and was composed of like materials.

77. **Helminthophila pinus.** BLUE-WINGED WARBLER. — Extremely rare. Mr. Herman H. Birney found a nest containing four eggs about to hatch, early in June, 1880. This is probably the only known instance of its occurrence here during the breeding season.

78. **Compsothlypis americana.** PARULA WARBLER.—Rare. Heard a male singing June 10, 1886, and watched it for some time, hoping it would give me information regarding the whereabouts of its nest, something it firmly declined to do.

79. **Dendroica æstiva.** YELLOW WARBLER.—Common.

80. **Dendroica vigorsii.** PINE WARBLER.—Very rare in summer.

81. **Dendroica discolor.** PRAIRIE WARBLER.—Common. The nest is very difficult to find.

82. **Seiurus aurocapillus.** OVEN-BIRD.—Abundant. Begins nesting about the last week in May; eggs four or five.

83. **Seiurus motacilla.** LOUISIANA WATER-THRUSH.—Uncommon.

84. **Geothlypis formosa.** KENTUCKY WARBLER.—Rare. Mr. Henshaw has found the nest here, and I have found young birds hardly able to fly.

85. **Geothlypis trichas.** MARYLAND YELLOW-THROAT.—Abundant.

86. **Icteria virens.** YELLOW-BREASTED CHAT.—Common. Begins nesting last week in May.

87. **Setophaga ruticilla.** AMERICAN REDSTART.—Rather common.

88. **Mimus polyglottus.** MOCKINGBIRD.—Rare.

89. **Galeoscoptes carolinensis.** CATBIRD.—Very abundant. Commences nesting about the middle of May; eggs four or five.

90. **Harporhynchus rufus.** BROWN THRASHER.—Moderately abundant. Begins nesting about two weeks earlier than the preceding. The nest is sometimes found on the ground.

91. **Thryothorus ludovicianus.** CAROLINA WREN.—Common. An early breeder. After leaving the nest the young birds continue with the old for some time.

92. **Troglodytes aëdon.** HOUSE WREN.—Very common. A nest found at Dunn-Loring, Va., by Mr. J. D. Figgins, was built inside of a deserted Barn Swallow's nest, and contained seven eggs.

93. **Cistothorus palustris.** LONG-BILLED MARSH WREN.—Very numerous. Breeds abundantly in all the marshes around Washington. Dr. Coues, in his 'Birds of the Northwest,' speaks as follows on the nidification of the Marsh Wren: "The eggs, as usual, are numerous — six or eight — sometimes so many as to induce the suspicion that they were not all laid by the same bird." This can hardly apply to the birds around here, as I have examined a great many nests just for the sake of finding a large set, and have never found more than five eggs or young in one nest.

94. **Sitta carolinensis.** WHITE-BREASTED NUTHATCH.—Rare. Have seen young being fed by old birds early in July.

95. **Parus bicolor.** TUFTED TITMOUSE.—Very common.

96. **Parus carolinensis.** CAROLINA CHICKADEE.—Uncommon. An early breeder. Have found fully fledged young on May 24.

97. **Polioptila cærulea.** BLUE-GRAY GNATCATCHER.—Quite rare. Saw a family of young Gnatcatchers being led about by old ones, on August 12, 1886.

98. **Turdus mustelinus.** WOOD THRUSH.—Common. Regarding the material composing the nest, Dr. Coues says: "As is well known, the nest of this species is saddled on the bough of a bush, shrub, or low tree, and has mud in its composition" ('Birds of the Northwest,' p. 2). In 'Avifauna Columbiana,' p. 34, he contradicts this statement, and speaks as follows: "The nest, placed in a bush or sapling, differs from that of the Robin in having no mud in its composition." As far as the writer's experience goes, and it accords with that of other collectors here, the nest of the Wood Thrush *does* contain *considerable* mud. The number of eggs found in a nest is usually four, and the nest is placed in a small sapling or tree, anywhere from four to twenty feet from the ground.

99. **Merula migratoria.** AMERICAN ROBIN.—Common. Begins nesting about the middle of April.

100. **Sialia sialis.** BLUEBIRD.—Common.

FEEDING HABITS OF *PELECANUS ERYTHRORHYNCHOS.*

BY N. S. GOSS.

NATURALISTS that have not seen the White Pelicans upon their feeding grounds, have without doubt read Audubon's interesting description of the manner in which the birds unite and drive the fishes into shallow water, where they can catch them, which they cannot well do in deep water, as their skins are honeycombed with air cells that buoy them up like a cork, and prevent their diving,* and they do not plunge for their food when upon the wing, like their cousins, the brown Pelicans, and therefore have to adopt fishing habits suited to shallow waters. I have often noticed the birds in flocks, in pairs, or alone, swimming on the water with partially opened wings, and head drawn down and back, the bill just clearing the water, ready to strike and gobble up the prey within their reach; when so fishing, if they ran into a shoal of minnows, they would stretch out their necks, drop their heads upon the water, and with open mouths and extended pouches scoop up the tiny fry. Their favorite time for fishing on the seashore is during the incoming tide, as with it come the small fishes to feed upon the insects caught in the rise, and upon the low forms of life in the drift, as it washes shoreward, the larger fishes following in their wake, each from the smallest to the largest eagerly engaged in taking life in order to sustain life. All sea birds know this and the time of its coming well, and the White Pelicans that have been patiently waiting in line along the beach, quietly move into the water, and glide smoothly out, so as not to frighten the life beneath, and, at a suitable distance from the shore, form into line in accordance with the sinuosities of the beach, each facing shoreward and awaiting their leader's signal to start. When this is given, all is commotion; the birds, rapidly striking the water with their wings, throwing it high above them, and plunging their heads in and out, fairly make the water foam, as they move in an almost unbroken line, filling their pouches as they go. When satisfied with their catch, they wade and waddle into line again upon the beach, where they remain to rest, standing or sitting, as suits them best, until they have leisurely swallowed the fishes in their nets; then, if undisturbed, they generally rise in a flock, and circle for a long time high in air.

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*The statement in 'North American Birds—Water Birds,' Vol. II, page 137, that this species "dives with great celerity" must be an error.

Off the south coast of Florida (a coral formation) the shoal water often extends out for miles, and the tide is scarcely perceptible. There the birds have no occasion to drive, but gather their food by coursing, and in such places the Brown Pelicans, so expert in dropping upon their prey in deep water, are forced, in order to save their necks unbroken, to feed in like manner; this is especially noticeable in the shallow ponds in the Everglades. Several years ago, in the month of September, I had the pleasure of observing a small flock of the birds fishing in the Neosho River, Kansas. When late at evening they were forced by tired wings to stop in their southward flight, the place selected was in still deep water, at the head of a fall, or rapids, in the stream, where the water for some fifteen rods, and with a depth of about six inches, was rippling and dashing over the rocks, a natural feeding ground for the fishes. The birds, after first bathing and dressing their feathers, giving particular attention to their primaries, without any unity of action, as hunger moved them, floated down over the rapids, picking up the fishes here and there, until the still water below was reached, when they would rise and fly back, to float down again, leisurely repeating this mode of fishing until it was quite dark.

NOTES ON *GYMNOSTINOPS MONTEZUMÆ.*

BY N. S. GOSS.

THE birds are known by the natives as the 'Oropendula,' also as the 'Inca Bird,' but are generally called 'Yellow-tailed Cassiques,' or rather 'Yellow-tails.' They are quite common in the low forest lands of Central America, upon the Atlantic side, but I did not find them on the Pacific slope, nor upon the high mountain lands. They are social in their habits, going in couples, and generally in flocks of from ten to fifty or more. They are noisy; their voice is harsh, coarse, and discordant, an indescribable jargon; even their whistling notes are not musical. In their food habits they are omnivorous, but seem to prefer fruits and berries, often doing great damage on the plantations when the bananas, plantains and mangos are ripening. For breeding purposes they select large *thorny* trees in an open space where the limbs of other trees do not touch, so as to be beyond the reach of reptiles, monkeys, raccoons, and other climbing nest robbers.

Their pendulous, gourd-shaped nests, which are suspended to the ends of the boughs of the tallest branches, are strongly and ingeniously woven of fibrous strippings from plants and frond-like leaves, with here and there a rootlet; the bottoms are lined with leaves. Some writers state that the birds build their nests of grasses, but I have been unable to find any in those that I have examined, and I am inclined to think *this large species* rarely, if ever, uses it; and if they do, the blades, so brittle when dry, must be of a very strong hemp-like nature, to long sustain the weight of the nest and its occupants against the wear and tear of the storms and winds.

The entrance is a purse-like slit at the top, the average length of the nest is about three feet, and the diameter at the rounded base, nine to ten inches. I have never found less than five, nor more than twenty-one nests in a tree; they are said, however, to build as many as fifty and even more, but the late growing demand in the United States for bananas has caused the producers, heretofore so indifferent and indolent, to be more watchful, and the large colonies of the birds are fast thinning out. The only eggs that have come under my observation I collected March 13, 1887, at Cayo, a small village on the Belize river, in British Honduras, near its western boundary line. There were thirteen nests in the tree, which was a species of locust; these were all hanging from one bough, from two to three feet apart, and at least seventy-five feet from the ground, but the dense undergrowth, a tangled mass of young palms, bushes and vines, supported the tree, when felled, like a cushion, so that, to my surprise, I was able to save unbroken three sets of fresh eggs, two in each nest. As the number of the broken eggs found in the other nests was the same, and as furthermore the nests were not large enough to rear more than a pair of the birds in each, I think it safe to enter two eggs as a full set, and I am also led to believe, from the great difference in the dimensions of the eggs, and in the size of the male and female birds (see measurements given below), that they are hatched in pairs which, as they go in couples, remain together during life.

First set: 1.49 × 1.10, 1.42 × .96 inch; ground color bluish white, thinly marked with specks and spots of brownish black, and with dark purple stains.

Second set: 1.49 × 1.08, 1.40 × 1.00 inch; ground color bluish white, clouded and marbled with pale rusty brown, with a few zigzag, hair-like streaks of a darker tint, the clouding thickest upon the largest egg.

Third set: 1.50 × 1.03, 1.40 × .98 inch; one bluish white, without a mark or stain (an aberrant egg), the other specked and spotted thinly with pale rusty brown, and having a few faint purple stains.

The broken eggs examined were all specked and spotted with either brownish black or pale rusty brown, in marked contrast to each other, the coloring matter by sets, however, largely alike.

A pair of the birds, which I shot and mounted in the winter of 1886 at Santa Tomas, Guatemala, measure as follows, in inches:

Sex.	*Length.*	*Stretch of wing.*	*Wing.*	*Tail.*	*Tarsus.*	*Bill.*
♂	22.00	32.00	9.75	8.25	2.00	3.00
♀	16.50	24.00	7.50	5.75	1.70	2.30

ON THE AVI-FAUNA OF PINAL COUNTY, WITH REMARKS ON SOME BIRDS OF PIMA AND GILA COUNTIES, ARIZONA.

BY W. E. D. SCOTT.

With annotations by J. A. Allen.

(*Continued from Vol. IV, p. 205.*)

178. **Piranga ludoviciana.** Louisiana Tanager.—Migrant and summer resident in the pine forests of the Catalina and Pinal Mountains, where they breed. They first appear in the spring about April 15, in the live oak belt of the Catalinas, and remain in numbers for about two weeks; they are to be seen as late as May 20. After this they are absent for about four or five weeks, when they return in much greater numbers than in the spring, and remain till late in September, being most abundant in the latter part of August and the first two weeks of September. This is in the Catalinas at an altitude of about 4000 feet.

They undoubtedly breed in the pine forests of the Catalinas, for the birds observed returning in late July are first adult males in full though very worn plumage, followed in a few days by the females and immature plumaged birds of the year. They soon congregate in large flocks, as many as fifty often being together, and at this time of year their food seems to be almost exclusively wild berries and small fruits of various kinds, particularly a kind of grape. They were noticed in the pine forests of the Catalinas as early as April 24 (see Auk, Vol. II, No. 4, p. 354, October, 1885), and my latest record of them in the cañon near my house was September 29, 1884, when they were observed in small numbers, all apparently young birds of the year.

179. **Piranga hepatica.** HEPATIC TANAGER.—Observed only in the oak region of the Santa Catalinas (5000 feet), where they are summer residents, breeding late in the season, from May 6 to 9, and remain till about September 10.

A pair taken July 12, 1884 (♂, No. 533, ♀, No. 534), were breeding, the female having finished incubating only three or four days before. The nest was on the outer branch of a live oak, and was an entirely similar structure to that of *Piranga erythromelas*, and contained three young birds.

From specimens taken early in September it appears that the adult male of this species assumes in fall a plumage very like that of the adult female. I have also found males in a similar though not identical plumage, mated and breeding late in June, which would seem to indicate that the brilliant plumage of the male is not acquired until the birds are at least two years old. The males noted breeding in the greenish yellow plumage were quite as accomplished songsters as the brilliant males, but I think the females do not sing.

180. **Piranga rubra cooperi.** COOPER'S TANAGER.—A common migrant and summer resident about Tucson, Riverside, Florence, and at Mineral Creek, as well as in the San Pedro valley. They seem more rare than either of the other species of Tanager in the oak region of the Catalinas, and though a few breed, for they were observed all through spring, summer, and early autumn, no nests were discovered. At this point, altitude 4000 feet, the earliest record of the spring arrival is May 2, and the latest birds observed in fall were seen September 10, when one was taken and two others seen.

Of this subspecies I am also inclined to think that the males do not assume the brilliant phase of plumage till at least two years old, as I have taken yellowish colored males in June in full song and, from the condition of the testes, evidently breeding.

Of the typical *Piranga rubra* I have also a specimen of an adult male bird taken near Tarpon Springs, Florida, in October, that is in the same brilliant plumage as in the spring. This bird had evidently only finished the moult a short time, as the feathers were wholly unworn and very brilliant. I also have notes of two other adult male birds of this species in the red plumage seen by me near the same locality in October, 1886.

In conclusion I may summarize my opinion on this subject by stating that I think that the fully adult males of *P. erythromelas* and *P. hepatica*, after having assumed the brilliant plumage of the breeding season, in the fall assume a plumage similar to that of the adult female, but that *P. rubra* proper, and probably the subspecies *cooperi*, once having assumed the brilliant plumage, wear it always. In the collection is a Tanager (No. 2434, ♂ ad., taken in the Catalinas, altitude 4000 feet, on May 6, 1885), that I can only refer to this subspecies. It has no regular pattern in the coloration, but is curiously marked at random with dark green, light pink and golden yellow in patches. The plumage is not at all worn, and the bird can only be regarded as a freak or anomaly.

181. **Progne subis.** PURPLE MARTIN.—Observed rather uncommonly about Tucson.

182. **Petrochelidon lunifrons.** CLIFF SWALLOW.—Observed in numbers about Riverside in April, 1882.

183. **Chelidon erythrogaster.** BARN SWALLOW.—Common migrant throughout the region, and breeds rather sparingly in the Catalinas, at an altitude of 5000 feet. The species seems much more abundant as a fall than as a spring migrant. On October 12, 1884, they were abundant in the Catalinas, at an altitude of 4000 feet.

184. **Tachycineta bicolor.** TREE SWALLOW.—Observed only about Tucson in early spring. They were noted in small numbers on March 10, 1886. Mr. Herbert Brown tells me he regards the species as rare.

185. **Tachycineta thalassina.** VIOLET-GREEN SWALLOW.—In the Catalinas this is the commonest of the Swallows, but, curiously, at the lower altitudes (4000 feet) in the spring it is rare or does not occur. In the spring of 1885 I found it common in late April on the summit of the mountains in the pine woods, but though I had looked for it carefully all the preceding six weeks at the altitude of my house I only saw a single individual, on March 14. In the late summer and fall from August 15 till October 7, it was common in the region near my house. It probably breeds in the pines of the Catalinas in numbers (see Auk, Vol. II, No 4, p. 354).

186. **Clivicola riparia.** BANK SWALLOW.—"Breeds about Fort Lowell" (*Herbert Brown*). I have no records of its occurrence except at this point, where I saw it in May and June, 1884.

187. **Stelgidopteryx serripennis.** ROUGH-WINGED SWALLOW.—"Rather rare about Tucson, arriving about the middle of March" (*Herbert Brown*). Mr. Brown very kindly allowed me to examine several specimens of this species in his collection, taken near Tucson.

188. **Ampelis cedrorum.** CEDAR WAXWING.—Mr. Brown has specimens of this species in his collection, taken by Mr. Nelson near Tucson, in May and June. I have no notes of its occurrence at other points in the region under consideration.

189. **Phainopepla nitens.** PHAINOPEPLA.—This species has been discussed at some length (see Auk, Vol. II, No. 3, pp. 242-246, July, 1885, paper on 'Breeding of Some Arizona Birds'), and there is little to add here. I met with it at every point visited by me up to an altitude of about 5000 feet. It is migratory, except about Tucson and in the region to the southward, and here only winters in small numbers. It apparently breeds throughout its range, raising at least two broods and probably three. In the Catalinas, at 4000 feet, my earliest spring record is April 25, and I have notes of their occurrence here till November.

190. **Lanius ludovicianus excubitorides.** WHITE-RUMPED SHRIKE.—Resident up to an altitude of about 5500 feet. Rather common throughout the year about Tucson, and observed in suitable localities throughout the area under consideration. In the Catalinas (altitude 3700 feet), a nest of this species, taken April 1, 1885, contained five eggs almost ready to be hatched. I think only one brood is raised here.

191. **Vireo gilvus** [**swainsoni.** Western] Warbling Vireo.—Common spring and fall migrant, and a few breed in the Catalinas at as low an altitude as 3500 feet. All my notes in regard to the species were made in the Catalinas, which is the only point where I have met with it. Mr. Brown has found it as a migrant about Tucson. In the Catalinas, altitude about 4000 feet, it arrives about the middle of April and remains until about October 1, being most common during the first two weeks of September. In 1885, on June 9, I took a nest of this species near my house, which contained two eggs nearly ready to hatch. The nest was similar to that of the species in the East in every way (♀ parent, No. 2779). For an account of the occurrence of this species in the pine region of the Catalinas, see Auk, Vol. II, No. 4, p. 354, October, 1885.

[A series of upward of twenty specimens of the Western Warbling Vireo in Mr. Scott's collection makes evident the propriety of restoring this form to formal recognition in our nomenclature, as Mr. Ridgway has recently done in his 'Manual' (p. 471). The characters of smaller size, slenderer bill, and more olivaceous coloring below are well borne out by the series before me.—J. A. A.]

192. **Vireo solitarius cassinii.** Cassin's Vireo.—All the data in regard to this subspecies were collected in the Santa Catalinas, altitude 4000 feet and above. My notes indicate this to be a rather uncommon spring and fall migrant. Observed in spring from April 18 to May 15.

[Of twelve specimens of this subspecies in Mr. Scott's collection seven were taken in April and May (April 6 to May 10), and five in September and October (Sept. 10 to Oct. 7), indicating, as Mr. Scott says, that it occurs merely as a spring and fall migrant. The fall specimens, as would be expected, are much more olivaceous than those taken in spring.—J. A. A.]

193. **Vireo solitarius plumbeus.** Plumbeous Vireo.—All my experience with this subspecies was obtained in the same locality as the last, where it had about the same distribution and time of spring arrival, except that it was much commoner, and particularly so in the late summer and early fall months. That it breeds at this point cannot be doubted, though at an altitude in the mountains greater than 7000 feet, for I have met with old birds in worn plumage as early as the middle of July. I also took a single example of the species in the pine woods of Mount Rice, Santa Catalinas, altitude 10,000 feet, April 30, 1885 (No. 2347, ♀).

[Mr. Scott's sixteen specimens of the Plumbeous Vireo were all but three taken in May, the earliest date being April 30, and the latest dates July 17 and 19. The July specimens are in exceedingly worn plumage. Of the thirteen May specimens, about one half were taken during the first week, and the remainder during the last week of this month (May 23-30); and the contrast between the condition of the plumage in the two series is striking, through the much more abraded state of the feathers in the birds taken near the close of the month, indicating that the birds were probably summer residents and breeding.—J. A. A.]

194. **Vireo huttoni stephensi.** Stephens's Vireo.—The only specimens of this subspecies that have come under my observation are the two

that I have already recorded from the pine region of the Santa Catalinas (see Auk, Vol. II, No. 4, p. 354, Oct., 1885), and an additional specimen procured on Mount Rice in the same range on April 30, 1885. Mr. Brown told me of a single specimen taken by him in the Quijotoa Range, in late February, I think. This bird is now in the collection of Mr. H. W. Henshaw.

195. **Vireo belli pusillus.** LEAST VIREO. — Common migrant and summer resident, breeding throughout the region up to an altitude of 4000 feet. In the Catalinas they arrive about the 25th of March and by April are common. They are apparently mated on arrival, and at once proceed to build nests and lay eggs. Two broods are generally raised and three eggs are commonly found to form the brood. They leave the Catalinas early, by September 5, but are to be found on the plains about Tucson much later.

196. **Vireo vicinior.** GRAY VIREO.—For the records of this species and its breeding habits I refer the reader to a paper already presented in this journal, entitled 'On the Breeding Habits of Some Arizona Birds' (Auk, Vol. II, No. 4, pp. 321-326, October, 1885).

197. **Helminthophila luciæ.** LUCY'S WARBLER.—A common migrant and summer resident in suitable localities, up to an elevation not exceeding 4000 feet, throughout the territory under consideration.

In the Catalina Mountains and in the valleys of the Gila, Santa Cruz, and San Pedro Rivers these birds bred in numbers, being among the commoner species present from late March and early April until the latter part of August. The first arrivals in 1885 in the Santa Catalinas, altitude 3500 feet, were March 29, a male taken and another seen; March 30, one taken and three others seen, all apparently males. On April 1 the arrival was general, when two were taken and many others seen.

The birds on arrival were about ready to breed, and in a very few days nesting was begun. Late in May I took young birds which were shifting for themselves, and some of the adult birds were just laying, so that probably two broods are generally reared.

198. **Helminthophila virginiæ.** VIRGINIA'S WARBLER.—The only point where this species was observed was in the Catalinas, and generally at an altitude exceeding 4000 feet. That they breed at this altitude, or a very little higher up on the sides of the mountains, I feel sure, as I took old and young birds during the third week in July, 1884, not uncommonly. The old birds were then moulting. In 1885, in the same general locality, altitude 3500 feet, the first arrival was noted April 16—only one seen, a male (No. 2169).—For reference to the occurrence of this species in the pine forests of the Catalinas, see Auk, Vol. II, No. 4, p. 352, Oct., 1885.

199. **Helminthophila ruficapilla gutturalis.** CALAVERAS WARBLER.—Migrant in the Catalinas at 4000 feet, which is the only point where I have obtained records of its occurrence. Even here I did not observe it during any of the spring migrations, though it was quite common from September 7, 1884, when the first arrivals were noted, until the 20th of that month, after which time it was not observed.

200. **Helminthophila celata lutescens.** LUTESCENT WARBLER.—Rather common spring and fall migrant in the Catalinas, altitude 4000 feet, and it probably breeds in the pine forests of this range in the higher altitudes. (See Auk, Vol. II, No. 4, p. 352, October, 1885.) The first spring arrivals (Catalinas, at 4000 feet) in 1885 were on April 3, and it was quite common until May 6 of the same season. Not seen later. In the fall I observed it in the same locality from September 3 until the first week in October.

201. **Dendroica olivacea.** OLIVE WARBLER.—The only notes of this species which I have, have been already recorded in this journal. (See Auk, Vol. II, 1885, pp. 172 and 352.)

202. **Dendroica æstiva [morcomi.** WESTERN] YELLOW WARBLER.—A rather common migrant and summer resident throughout the region, and found breeding in the Catalinas up to 4500 feet. My earliest spring record is March 30, 1885.

[Eleven specimens in Mr. Scott's collection show this newly named subspecies to have a more than usually satisfactory basis. Mr. Coale founded his separation (Bull. Ridgw. Orn. Club, No. 2, April, 1887, p. 81) of this form apparently on specimens from Fort Bridger, Utah. Judging from his description our Arizona specimens are considerably paler than Utah ones. A female (No. 2331) taken April 27, 1885, is so very pale as to show no decided yellow below, the lower parts being merely pale, soiled, yellowish white, and there is no decided yellowish anywhere except on the top of the head, upper and lower tail-coverts, edges of the quills, and inner vanes of the tail-feathers. The other spring females show a more or less decided wash of yellow over the lower parts, and of greenish yellow above. In one the yellow is a little stronger, and there are slight traces of reddish streaks on the sides of the breast. Both males and females are strikingly different from *D. æstiva* of the East, and the wonder is that the form was not earlier separated, judging by the Arizona specimens.—J. A. A.]

203. **Dendroica coronata.** YELLOW-RUMPED WARBLER.—Not nearly so common as *D. auduboni*, but I think of regular occurrence as a migrant. I have seen several specimens in the collection of Mr. Herbert Brown, of Tucson, one of these being taken on January 28, 1886.

204. **Dendroica auduboni.** AUDUBON'S WARBLER.—A common migrant, and a few probably breed in the pine forests of this region. They winter in small numbers in the valley of the Santa Cruz, about Tucson, and also in the valley of the San Pedro River. (For further references to the species see Auk, Vol. II, No. 4, p. 352, October, 1885.)

205. **Dendroica graciæ.** GRACE'S WARBLER.—The only point where I have observed this species is in the pine forests of the Santa Catalinas in the spring. (For details see Auk, Vol. II, No. 4, p. 352, October, 1885.) A pair that were apparently mated and about to nest, were taken in the pine forests of Mount Rice, Catalina Range, April 30, 1885. They are catalogued as No. 2349 ♂, and No. 2348 ♀, in the collection made by me in this region.

206. **Dendroica nigrescens.** BLACK-THROATED GRAY WARBLER.—

This species I found quite commonly as a migrant in the Catalinas, and it breeds rather rarely in the same range at an altitude exceeding 4500 feet. They arrive late in March (Catalinas, 4000 feet), and are not very common during the spring migration. A few are to be noted at a little higher elevation all through the summer months, and in the early fall their numbers are very appreciably augmented. They remain in this same locality till about the first week in October. (For reference to their occurrence in the pine forests of the Catalina Range, see Auk, Vol. II, No. 4, p. 352, October, 1885.) On June 15, 1885, I took two fully fledged young of this species in the Catalinas at a little above 4000 feet. They are catalogued, " ♂ *juv.* 2809, ♀ *juv.* 2810."

[These two examples, and two others taken July 12, do not appear to differ in color or markings from birds of the year killed in October.—J.A.A.]

207. **Dendroica townsendi.** Townsend's Warbler.—Found only as a migrant in the Pinal and Catalina Ranges. The following are the records transcribed from my journal:

"Mineral Creek, Gila County, altitude 5000 feet, took ♂, No. 153, November 2, 1882. The only representative of this species observed here."

"Catalinas, 4000 feet, September 8, 1884, one seen, the first of the fall migration. Same locality, September 28, 1884, took ♂, No. 931, the only one seen. September 29, took ♂, No. 957, and saw several others —this at about 3500 feet. Same locality, May 6, 1885, general arrival, and the first seen this spring. They were quite common in the oak belt, altitude a little over 5000 feet. Took four and saw several others."

208. **Dendroica occidentalis.** Hermit Warbler.—Among the rarest Warblers of the region apparently. I have met with it only on one occasion —September 29, 1884, in the Catalina Range, altitude 3500 feet,—when I took two, both males (Nos. 958 and 959), and saw two others.

209. **Seiurus noveboracensis notabilis.** Grinnell's Water Thrush.—In the Catalinas, at an altitude of about 3500 feet, on September 2, 1884, I took an adult female Water Thrush (No. 780), and on the following day an adult male (No. 797), both of which I refer to this subspecies. These are the only examples I have met with and I did not see any specimens in Mr. Brown's collection.

210. **Geothlypis macgillivrayi.** Macgillivray's Warbler.—A rather common migrant, and a few probably breed in the Catalinas, as I have taken young birds early in August. After the 9th of this month they were not rare. They arrive early in May and remain till the last of September, the latest record I have being the 25th of that month. These observations were made in the Catalina Range, altitude 4000 feet. Mr. Brown regards it as a rather common migrant about Tucson, where I also saw it late in April, 1884, in numbers.

211. **Geothlypis trichas occidentalis.** Western Yellow-throat.—"A rather common migrant, and breeds about Tucson, but is not found in winter at this point." (*Herbert Brown.*) Mr. Brown also tells me that it arrives in the vicinity of Tucson about the first week in March, and remains in numbers late into October, and is occasionally seen in the early part of November.

[I find a single specimen in fall plumage in Mr. Scott's collection, labelled as follows: "Catalina Mill, 11 Oct., 1883. ♀, 148."—J. A. A.]

212. **Icteria virens longicauda.** LONG-TAILED CHAT.—Common migrant and summer resident in suitable localities up to an altitude of 4000 feet throughout the region. In the Catalinas, altitude 3000 to 4000 feet, it arrives early in May, about the 2d to 5th, and remains till about the 20th of September, but by the middle of that month most of the representatives of the species have left this point.

213. **Sylvania pusilla pileolata.** PILEOLATED WARBLER.—Rather common migrant, particularly in fall. Frequents the neighborhood of streams and damp places. It is not improbable that a few may breed at high altitudes in the Catalina Range. This inference is made from the very early return in fall to the region most studied in these mountains, altitude 3000 to 5000 feet. In the Catalinas, between the elevations just indicated, the species is rather uncommon in the spring, arriving during the last week in April. By the first of June they are no longer to be found, but the first of the fall migrants arrive about August 1, and by the middle of the month they are common, remaining until late in September, and being at times during that month very abundant.

214. **Setophaga ruticilla.** AMERICAN REDSTART.—The only record made of the occurrence of this species was the capture of an adult male in the Catalina Mountains, altitude 4500 feet, August 12, 1884. Mr. Herbert Brown has also taken it on one occasion near Tucson in spring. So far as I am aware these are the only records for the Territory of Arizona, and in the region here treated the bird must be considered rare.

215. **Setophaga picta.** PAINTED REDSTART.—This species I have met with only in the Catalina Range, and at an altitude exceeding 4000 feet. It is apparently most abundant as a summer visitor in the pine forests of these mountains, though I found them breeding as low down as five thousand feet in the evergreen oak belt. This was on two occasions, the young having just left the nest both times. The birds seem to prefer the vicinity of water, and are not to be met with far from such localities.

As migrants, at the lower altitude, when they occur, they are quite rare in the spring, but not at all uncommon in the fall.

In the Catalinas, altitude 4000 feet, the earliest spring arrivals that I have noted were on March 24, 1885, when one was taken and another seen. These were all that were noted at this point, or outside of the pine forests that spring. (For record of occurrence in the pine region, see Auk, Vol. II, No. 4, p. 353, October, 1885.) The species is frequent at the lower altitudes through September, but by October 1 all have apparently gone.

216. **Cardellina rubrifrons.** RED-FACED WARBLER.—This species was met with only in the pine forests of the Catalinas, where it was common late in April, 1885 (see Auk, Vol. II, No. 4, p. 353, October, 1885). The only additional notes that I have were made in the pine forests of Mount Rice, in the same range, April 30, 1885, when a few were noted in pairs, but they were very shy.

(*To be concluded.*)

NEW FORMS OF NORTH AMERICAN *CHORDILES.*

BY ELLIOTT COUES.

Examination of material in the American Museum of Natural History, in company with Mr. Allen and Mr. Sennett, shows that there are four subspecies of *Chordiles popetue* in the United States. The mistake has hitherto been that we have called all the light Western forms *C. henryi*, and have ignored the distinction of the Florida bird. The four forms are:

1. **Popetue**, large, glossy black predominating on the upper parts, and underparts fully barred with blackish and white in about equal amounts, the rufous tints being slight on any part of the plumage. *Hab.* Eastern North American Province of Baird, the breeding range exclusive of the Gulf States.

2. **Sennetti**, large, silvery grayish-white predominating above, the white below greatly in excess of the narrow, irregular or broken, dark bars, and little or no rufous anywhere. *Hab.* Dakota to Texas, in any treeless country. Types 65,490, Mus. Smiths. Inst., formerly 3301, Mus. E. C., 50 miles west of Pembina, Minn., July 16, 1873, and 4927, Coll. George B. Sennett, Wharton Co., Texas, May 27, 1887.

3. **Henryi**, large, rufous tints everywhere prevailing, dark lines on underparts about equal in amount to the tawny white interspaces. *Hab.* Western North America; geographical distribution not yet fully worked out.

4. **Chapmani** (Sennett's MS.), small, wing half an inch less than in *popetue*, with which the coloration agrees. Hab., Florida to Texas. Type No. 847, Coll. Frank M. Chapman, to which accomplished young ornithologist the new form is dedicated by Mr. Sennett, taken May 19, 1887 at Gainesville, Florida.

OBSERVATIONS ON THE NOCTURNAL MIGRATION OF BIRDS.

BY FRANK M. CHAPMAN.

Mr. W. E. D. Scott's papers on this subject (Bulletin Nuttall Ornithological Club, Vol. VI, pp. 97, 188) have not to my knowledge been followed by any of a similar character, and, the facts to be determined being of such vital interest, I feel urged to present the results of my own observations, limited though they be, as a slight contribution to the larger amount of data we must amass before arriving at any strictly accurate conclusions concerning every phase of the nocturnal journey of migrating birds.

The following notes were obtained with the assistance of my astronomical friend, Mr. John Tatlock, Jr., on the night of September 3, 1887, at Tenafly, New Jersey, about three miles west of the Hudson River, Mr. John F. Paulison most courteously having placed his observatory and 6½-inch equatorial telescope at our disposal.

The most important facts to be determined in observations of this nature are, of course, the height at which these flights occur, and also the number of birds which cross the field of view at any given time.

The method adopted was the same as that used by Mr. Scott, the telescope being pointed at the full moon, which served as a background, showing with wonderful distinctness the birds as they crossed, the observer calling to the recorder as each bird came into view, the latter noting the time.

These observations appear in the following table, where also are given the apparent altitudes of the moon computed at ten minute intervals during the period of observation.

From the altitudes are computed the heights at which the birds in the field at that time were probably flying.

The problem of determining this height exactly is not, so far as we can now judge, capable of definitive solution, for the reason that we have no means of ascertaining the distance of the bird from the observer.

In this case, therefore, we are compelled to resort to an hypothesis of the probable distance at which a bird was visible, and we thus assumed that the least distance from the observer at which a bird could be seen was one mile, the greatest five miles, feeling sure that, in accepting these limits, we do not overestimate the greater distance.

In this connection the appearance of the birds as they crossed the field is of great importance, those which passed more slowly being obviously the ones at the greater distance; and in this class are included the few possessing some marked characteristic of flight which rendered indentification possible; these were as follows: at 8.34 a Grackle, at 9.22 a Carolina Rail, at

9.26 two Carolina Rails, at 9.30 a large Snipe, at 9.33 a Carolina Rail, at 10.15 a Carolina Rail, and at 10.44 a Duck.

The major portion, however, passed at what may be termed the middle distance, or, in other words, too rapidly for us to more than distinguish that they were birds. During the first half hour of observation a number of birds were seen flying upward, crossing the moon, therefore, diagonally, these evidently being birds which had arisen in our immediate neighborhood, and were seeking the proper elevation at which to continue their flight, but after that time the line of flight was parallel to the earth's surface, the general direction being south.

In the appended table the figures given in the vertical columns headed 1, 2, 3, etc., are the numbers of birds observed per minute, the time being found by adding to that of the left-hand column the desired number at the head of the column following; to the right appear the totals and altitudes.

In conclusion I desire to express my thanks to Mr. Paulison for so courteously permitting us to use his observatory, and especially to my friend Mr. Tatlock, who, in preparing its astronomical portion, deserves entire credit for whatever value this paper may possess.

TABLE SHOWING TIME AND APPROXIMATE HEIGHT AT WHICH THE BIRDS OBSERVED FLEW.

Time	0	1	2	3	4	5	6	7	8	9	Total No. Birds	Moons app. alt.	Height, inf. limit.	Height, sup. limit.
H.M.												° '	FT.*	FT.*
8.00	1	...	...	...	...	...	...	...	...	...	1	7.0	600	3,200
8.10	1	...	...	...	...	...	...	...	...	...	1	8.8	800	4,000
8.20	...	...	...	...	1	...	...	...	...	...	1	10.6	1000	4.900
8.30	2	...	...	...	1	2	...	...	...	1	6	12.4	1100	5,700
8.40	1	2	1	...	1	1	2	4	7	1	20	14.2	1300	6,500
8.50	1	1	1	2	4	3	...	2	7	3	24	16.0	1500	7,300
9.00	...	1	...	2	...	...	...	2	2	3	10	17.7	1600	8,000
9.10	5	1	2	2	4	...	3	...	2	2	21	19.5	1800	8,800
9.20	7	...	6	5	4	1	7	4	5	5	44	21.2	1900	9,500
9.30	4	1	5	6	6	4	3	1	2	2	34	22.8	2000	10,200
9.40	...	2	2	...	1	4	2	2	1	1	15	24.5	2200	11,000
9.50	...	1	1	...	1	1	...	...	...	...	4	26.1	2300	11,600
10.00	3	...	...	1	...	...	4	3	4	1	16	27.6	2400	12,200
10.10	1	...	1	1	1	3	1	1	2	1	12	29.2	2600	12,900
10.20	3	...	5	1	...	...	1	1	1	1	13	30.8	2700	13,500
10.30	...	...	4	...	1	1	3	2	...	...	11	32.1	2800	14,000
10.40	...	...	1	1	1	3	1	4	2	5	18	33.6	2900	14,600
10.50	...	2	1	1	1	...	2	...	1	3	11	34.8	3000	15.100

*Calculated to nearest 100 feet.

NOTES ON THE *PEUCÆA RUFICEPS* GROUP, WITH DESCRIPTION OF A NEW SUBSPECIES.

BY GEORGE B. SENNETT.

A NUMBER of Rufous-crowned Summer Finches recently collected by Mr. Wm. Lloyd in Western Texas, led me to examine into the history of all the forms of the genus with the following results.

After a thorough study of the abundant material in all forms which I have at hand, and a careful analysis of the text of the original describers, it seems to me certain that an error was made in the naming of var. *eremœca* (see Bull. Nuttall Ornith. Club, Vol. VII, Jan. 1882, p. 26) as distinct from *boucardi* (see P. Z. S., 1867, pl. 1. pp. 1, 2).

For the benefit of those not having access to the 'Proceedings' of the Zoölogical Society of London, 1867, I will quote from Mr. Sclater's observations on page 2: "I have had three indifferent skins of this species (collected by M. Botteri, near Orizaba) for several years without being able to identify it satisfactorily. M. Boucard's recent collections having contained excellently prepared examples, I have been enabled to make a better examination of it and to satisfy myself that it is, as far as I can tell, undescribed." Also on same page he gives "*Hab.* in Mexico meridionali, Orizaba (Botteri); La Puebla (Boucard)." Mr. Sclater also labelled the Orizaba specimens "*boucardi*." More than twenty years ago, when very little was known of this group, Mr. Sclater evidently saw that the Orizaba birds were the same as those from La Puebla, and was particular to say so, and to put Orizaba first in the list of localities given as its habitat.

The plate evidently figures the more adult specimen from La Puebla, and the Latin diagnosis does not point particularly to the black shaft lines of the back, which we recognize as distinguishing it from other forms, but otherwise answers the description of the Orizaba specimens as well as the La Puebla ones. Having before me one of the original Orizaba specimens, and adults from La Puebla and the city of Mexico, and also both adults and young from Western Texas, I am decidedly of the opinion that Mr. Sclater's Orizaba specimens of *boucardi* were in the first year's plumage, *i. e.*, in the plumage before the moult of the second year. Now Mr. Brown's birds, from Kendall Co., Texas, were taken in January, February, and March, and were identical with the Orizaba skin, as stated in his description of *eremœca* referred to above. These birds were undoubtedly immature in plumage, although full-grown. I do not see how the Orizaba bird, described and labelled by Mr. Sclater, can be other than *Zonotrichia* (now *Peucæa*) *boucardi*. There is nothing left therefore but to call *eremœca* a synonym of *boucardi* and extend the latter's habitat to Central Texas. Having before me a great number of specimens of this group, from widely extended localities, I can more thoroughly establish *boucardi*. I am also able to separate the Arizona form from *boucardi*, where it has with doubt and hesitation been placed.

Before giving a full description of each of the three races, I will state comprehensively their characteristics and distribution.

Peucæa ruficeps (Cass.). Small, olive-gray and ferruginous; confined to the Pacific slope.

Peucæa ruficeps boucardi (Scl.). Large, with long bill; dark gray and reddish brown with dark shaft-lines on back; confined to the Gulf slope of Mexico and Texas.

Peucæa ruficeps scottii, subsp. nov. Large, with short, stout bill; light ash and chestnut, without olive or ferruginous, and without black shaft-lines on back; table-lands and mountains of Arizona, New Mexico (?) and Western Texas (?).

I take pleasure in naming this new form for Mr. W. E. D. Scott, in recognition of his excellent work on the ornithology of Arizona.

The two forms *boucardi* and *scottii* seem to meet in that high part of Western Texas that lies between the Pecos and the Rio Grande Rivers. Here the bills of both seem to be blacker, especially on the lower mandible; the wings and tails also seem to be darker brown than in typical specimens of either form.

The three forms of the Rufous-crowned Sparrow may be characterized as follows:—

Peucæa ruficeps (*Cass.*). RUFOUS-CROWNED SPARROW.

Adult: Small; upperparts rusty or ferruginous chestnut, the edgings of the feathers olive-gray. This rusty chestnut of back usually takes, in prepared skins, the form of long and broad streaks showing no dark shaft-lines. Tail rufous. Six adult males average: wing, 2.30; tail, 2.58; culmen, .43; tarsus, .75 inch.

Habitat. Pacific slope (California).

Peucæa ruficeps boucardi (*Scl.*). BOUCARD'S SPARROW.

Adult: Larger in every part than *ruficeps*. The crown patch alone of the upperparts is dark chestnut, and is more restricted than in *ruficeps*. The strongly marked edgings of the feathers gives the dorsal region a brownish gray appearance. The centre of these feathers is brown, and the shaft-lines are dark and more or less conspicuous; very old and much worn specimens have only traces of dark shaft-lines. Tail and wings brown, edged with rufous. There is none of that rusty appearance which predominates in *ruficeps;* sometimes traces of olive are noticed on the gray of back.

Young: Similar to adult, but without any reddish brown on back, though with black shaft-lines, thus giving the upperparts a dark gray appearance with black streaks.

Twelve adult males average: wing, 2.62; tail, 3.02; culmen, .50; tarsus, .81 inch. Females have wings and tails a little smaller.

Habitat. Eastern Mexico (heights of Vera Cruz, Orizaba, Puebla, and City of Mexico) and Texas (Kendall and Presidio Counties).

Peucæa ruficeps scottii, subsp. nov. SCOTT'S SPARROW.

Adult: Large; tail averaging half an inch longer than in *ruficeps*; bill short and stout, but little if any larger than in *ruficeps*, and darker. Upper parts pale chestnut, edged very finely on crown but more strongly on dorsal region with light ash. No dark shaft-lines. The edgings are not so heavy as in *ruficeps*, and being of pale ash rather than of olive-gray, give this form an ashy brown rather than a ferruginous appearance. This same light ashy brown effect is plainly shown when compared with the dark gray and black shaft-lines of *boucardi*. This narrow edging of the feathers gives the back a mottled rather than a streaked effect, as seen both in *ruficeps* and *boucardi*. Underparts paler than in either *ruficeps* or *boucardi*. Tail and wings brown edged with rufous. Fall and winter specimens of young of the year are darker, and the chestnut of back is redder and more in streaks.

Young: Streaked above with reddish brown and gray. Below ash, lightly streaked with black, the lines being most pronounced upon the breast. There is a slight wash of tawny on breast, sides, flanks, and under tail-coverts.

I give two specimens as types: (1) No. 5247, collection of G. B. Sennett, collected by W. E. D. Scott, Pinal Co., Arizona, March 27, 1885. Collector's No. 1979. Wing, 2.72; tail, 3.20; culmen, .44; tarsus, .32 inch.

(2) Collection of American Museum, collector's No. 1884, collected by W. E. D. Scott, Pinal Co., Arizona, March 14, 1885. Wing, 2.65; tail, 3.15; culmen, .43; tarsus, .84.

Thirty-two males average: wing, 2.63; tail, 3.08; culmen, .45; tarsus, .81. Eleven females average: wing, 2.51; tail, 2.96; culmen, .445; tarsus, .81.

Habitat. Highlands of Arizona. New Mexico (Silver Springs)? and Western Texas (Presidio and Mitchell Counties)?

DESCRIPTIONS OF A NEW SPECIES AND TWO NEW SUBSPECIES OF BIRDS FROM TEXAS.

BY GEORGE B. SENNETT.

Psaltriparus lloydi, sp. nov. LLOYD'S BUSH-TIT.

Adult Male:—Upper parts lead-color, whitening on forehead, and somewhat darker on back. Sides of head glossy black, which extends backward on each side, meeting and forming a collar on lower back of neck. Underparts ashy white, darker toward the tail, and black on chin. Bill and feet glossy black. Wings and tail light brown, edged with ashy plumbeous.

Adult Female:—Similar to male but with ear-patches clear glossy brown instead of black. More or less of black is seen back of auriculars and in collar. Young similar to adults.

Nest pensile, purse-like, composed of mosses, flower stems, and lichens, having a lining of feathers. Eggs pure white. Breeds in pineries of high altitudes.

Habitat. Mountains of Western Texas, between the Pecos and Rio Grande Rivers.

The following data are taken from specimens in my collection obtained in Limpia Cañon, near Fort Davis, Presidio County, at altitudes of from 6200 to 6400 feet, by Wm. Lloyd, for whom I take pleasure in naming this interesting new species. The first two specimens named below are the types.

	Wing.	Tail.	Culmen.	Tarsus.
No. 4895, ♂, June 16, 1887	1.93	2.25	.27	.57
No. 4896, ♀, June 16, 1887	1.96	2.30	.30	.67
No. 4897, ♀, June 16, 1887	2.00	2.27	.30	.65
No. 4898, ♀, June 16, 1887	1.90	2.23	.30	.58
No. 4913, ♀, June 21, 1887	2.00	2.30	.30	.65
No. 4912, ♂, juv., June 21, 1887	1.95	2.27	.27	.62
No. 4903, ♀, juv., two-thirds grown, June 17, 1887.				
No. 4904, ♂, juv., two-thirds grown, June 17, 1887.				

Nest with one egg taken in Limpia Cañon, June 21, 1887, altitude 6200 feet, fastened to twigs of cedar seven feet from the ground. The cedar tree was twenty-five feet high, situated on a divide between two ravines. Identification complete, since the female was discovered in the nest, and the male was perched close by. Nest six inches long; largest diameter, which is at the bottom, 3 inches; smallest diameter, which is near the top under the twigs that supported it, 2.5 inches. The egg measures .58 inch in length and .42 in breadth.

This species is distinct from *P. melanotis*, Black-eared Bush-Tit, by reason of total absence of both brown on back and rufous on underparts. It is easily distinguished from *P. plumbeus* by the collar, and by the black instead of ashy brown on sides of head. Aside from the head markings it is more like *P. plumbeus* in color than *P. melanotis*, but it has a much whiter throat and a larger bill.

Nyctidromus albicollis merrilli, subsp. nov. MERRILL'S PARAUQUE.

Adult male:—Upper parts gray, washed lightly with brown; the feathers have black shaft-lines, which are very delicate on sides of crown and neck, heavier on rump, heavier still on back, and extra broad on centre of crown and occiput, giving the effect of a black central crown patch. The scapulars have the inner webs gray and the outer webs barred and blotched with black, the whole broadly margined with white, creamy white, and light buff, presenting a rich velvety effect. Primaries brownish black; secondaries spotted with black and buff; tertiaries gray with heavy black shaft-lines. Coverts tipped broadly with light buff and cream white. Edge of wing buff. A broad bar of white extends diagonally across both webs of five (sometimes six) of the outer primaries; this white wing-patch is partly covered by the secondaries in the closed wing. The two central tail-feathers gray, herring-boned down the shaft with black; the next pair of feathers are darker gray and have broader black markings; the third pair are pure white almost their entire length, sometimes having more or less margin of brown on outer web; the fourth pair of feathers are wholly white on inner web and mostly brownish black on outer; outer tail-feathers brownish black. Chin black, barred with buff. Large throat-patch of white. Underparts light buff, barred with black, lightly on belly, heavily on flanks and breast, the latter being also washed with white, which gives the whole breast a grayish buff appearance. Size, largest of its species.

Adult female:—A little smaller than the male; rather darker, with smaller throat-patch, and white of tail restricted to the terminal portion of the feathers. The four central tail-feathers like those of the male; the rest heavily barred with black and buff. The wing-patch is also more restricted in size, is confined to the four outer primaries, and on the upper surface shows clear buff instead of white, since the latter color is limited to the inner web of remiges.

Immature plumage:—More fulvous all over and more heavily barred with black underneath. The black lines of crown are broader, and cover the head more extensively. White wing-patch of male mixed with buff; white on tail not so sharply defined, nor does it extend so near to base as in mature birds. The outer tail-feathers are barred and streaked with brown and buff. White throat-patch smaller and barred sparingly with black and buff. In this immature stage the sexes are not easily determined aside from the difference in the white tail-patches; in the males the white on second feather from outside is never less than 2.5 inches long, while in the females the corresponding patch is about one inch in length.

Young, first plumage:—More pale buff on upper surface, the black markings smaller, browner and less velvety. Crown speckled with irregular diamond-shaped brown spots, each surrounded by light gray. Underparts dull pale buff. Wing-coverts, throat, breast, sides and flanks barred with black. Throat-patch indistinct. Sexes recognized by same markings as in full grown birds.

Young, downy stage:— Completely covered with the finest and softest of down, leaving nothing exposed but the feet and the tip of bill. Color on belly the palest of tawny; darker on sides, and running into deep fulvous on back, shoulders, chin, and sides of head through eye, and on the edges of both mandibles.

Since at least two years must elapse before the perfect plumage is attained, the bird necessarily undergoes various changes in special markings and general color: hence the necessity for being explicit in describing the various stages. The types are in full breeding plumage, having, with two young just from the egg, been taken at the most northern limit yet recorded.

Types:—No. 4122, ♂, my collection, taken by J. M. Priour, Nueces River, Nueces Co., Texas, March 22, 1887. Wing, 7.10; tail, 7; tarsus, 1.05. No. 4121, ♀, my collection, taken by same person at same place and time as above. Wing, 6.90; tail, 6.50; tarsus, 1.02.

Adult males (four specimens) average, wing, 7.10; tail, 7. Immature males (eight specimens) average, wing, 7; tail, 6.93. Adult females (two specimens) average, wing, 6.90; tail, 6.62. Immature females (three specimens) average, wing, 6.82; tail, 6.40.

Habitat. Southern Texas, and probably Northern Mexico.

This form, when compared with others of the species from Southern Mexico, Costa Rica, Panama, Guiana, and Brazil, can be distinguished, first by the prevailing gray color on upper parts, where the others have brown, rufous or cinnamon; second, by its large size, exceeding the large southern Brazilian form in length of wing and equalling it in length of tail; third, by the males having the outer tail-feather generally without white, and the white when it does occur being much restricted, while in more tropical and South American forms the rule is that males have much white on inner web of outer tail-feather. The birds of this genus I believe to be resident wherever found. I take pleasure in naming this race for my friend, Dr. J. C. Merrill, who first discovered the bird in the United States, on April 1, 1876 (see Bull. Nutt. Orn. Club, Vol. I, p. 88), and who aided me materially in my explorations on the Lower Rio Grande.

From material at my command it seems to me the species can be further divided by separating the large Southern Brazilian form from the one found on and near the equator. I hope to make this revision in the near future. Should my supposition prove correct the large Southern Brazilian bird should be called *Nyctidromus* [*albicollis*] *derbyanus* Gould (Icon. Av. II, 1838). Of this form I have had opportunity to examine the series of 27 specimens belonging to the American Museum of Natural History, collected by Mr Herbert H. Smith in the Province of Matto Grosso, Brazil. I have been aided greatly by all the material relating to this group in the possession of the National Museum, which was kindly loaned me by Mr. Ridgway.

Parus carolinensis agilis, subsp. nov. PLUMBEOUS CHICKADEE.

Top of head and throat black; wings and tail edged with white, as in *carolinensis*. Above pale plumbeous; below white with the slightest possible wash of buff on sides and flanks. Size, larger than *carolinensis*, and the tail longer, more nearly approaching the length of the wing.

Type, No. 3894, my collection, taken by J. M. Priour, Bee Co., Texas, Jan. 2, 1887. Wing, 2.45; tail, 2.40; culmen, 38.

The measurements of three other adults are as follows: No. 406, ♀, Collection of J. A. Loomis, Paint Rock, Texas, Feb. 21, 1887: wing, 2.42; tail, 2.52; culmen, .37. No. 4218, my collection, April, 1887: wing, 2.47; tail, 2.25; culmen, .37. No. 4219, ♂, my collection, April 15, 1887: wing, 2.40; tail, 2.25; culmen, .40. I have also two full grown and two half grown young, taken in April, which resemble adults.

This new Chickadee can be distinguished from its nearest ally, *P. carolinensis*, by its whiter underparts; by its being almost entirely free from buff washings on sides, and from olive and brown washings on upper parts; and its very pale lead color on back.

Habitat. Texas (Bee, Victoria, and Concho Counties).

I have difficulty in finding a name that will apply to any of the bird's special characteristics which has not already been used for some species of this genus. The common name, however, will distinguish it from other forms of *Parus*.

DESCRIPTION OF A SUPPOSED NEW FORM OF *MARGAROPS* FROM DOMINICA.

BY CHARLES B. CORY.

Margarops montanus rufus, subsp. nov.

Subsp. Char. (Type, No. 12,001 Coll. C. B. Cory.) Apparently larger than *M. montanus*, and distinctly reddish brown instead of dark brown; otherwise similar to *M. montanus*, of which it is apparently a light colored northern form.

Length (skin), 8.70; wing, 4.75; tail, 4; tarsus, .90; bill, .65.

Habitat. Dominica, West Indies.

AN APPARENTLY NEW *ELAINEA* FROM BARBADOES, WEST INDIES.

BY CHARLES B. CORY.

Elainea barbadensis sp. nov.

Sp. Char. (♂ *ad.* Type, No. 12,018, Coll. C. B. Cory.) Upper parts dark olive, with basal portion of the feathers on the crown white; outer webs of quills edged with dull brownish white; tail-feathers olive brown, edged with olive green on the outer webs; sides of the head and cheeks dark olive; throat gray; breast and underparts olive gray, faintly tinged with yellow.

Length, 6.65; wing, 3.55; tail, 3.30; tarsus, .95; bill, .45.

Habitat. Barbadoes, West Indies.

This form is apparently larger than *E. martinica*, and darker; the underparts are nearly uniform in color.

THE BIRDS OF THE WEST INDIES, INCLUDING THE BAHAMA ISLANDS, THE GREATER AND THE LESSER ANTILLES, EXCEPTING THE ISLANDS OF TOBAGO AND TRINIDAD.

BY CHARLES B. CORY.

[*Continued from Vol. IV, p. 328.*]

Genus **Nycticorax** Steph.

Nycticorax Stephens, Gen. Zool. XI, p. 608, 1819.

Nycticorax violaceus (Linn.). ✓

Ardea violacea Linn. Syst. Nat. I, p. 238 (1766); Sundev. Oefv. K. Vet. Akad. For. 1869, p. 589 (St. Bartholomew); *ib.* p. 603 (Porto Rico).

Nycticorax violacea D'Orb. in La Sagra's Hist. Nat. Cuba, Ois. p. 213 (1840).

Nycticorax violaceus Bryant, Pr. Bost. Soc. Nat. Hist. VII, p. 120 (1859) (Bahamas); *ib.* Brewer, p. 308 (1860) (Cuba).—Scl. P. Z. S. 1861, pp. 70, 81 (Jamaica).—Albrecht, J. f. O. 1862, p. 206 (Jamaica).—Scl. P. Z. S. 1871, p. 273 (Santa Lucia).—A. & E. Newton, Handb. Jamaica, p. 111 (1881). — Cory, Auk, III, p. 502 (1886) (Grand Cayman).

Nyctherodius violaceus A. & E. Newton, Ibis, 1859, p. 262 (St. Croix).—Cassin, Pr. Acad. Nat. Sci. Phila. 1860, p. 379 (St. Thomas); *ib.* March, 1864, p. 65 (Jamaica).—Gundl. Repert. Fisico-Nat. Cuba, I, p. 351 (1866).—Lawr. Ann. Lyc. N. Y. VIII, p. 98 (1867) (Sombrero).—Gundl. J. f. O. 1875, p. 311 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 363 (1878) (Porto Rico).—Wells, List Bds. Grenada, p. 9 (1886).

Nyctiardea violacea Lawr. Pr. U. S. Nat. Mus. I, p. 275 (1878) (Grenada); *ib.* p. 460 (Guadeloupe).—Allen, Bull. Nutt. Orn. Club, V, p. 169 (1880) (Santa Lucia).—Cory, Bds. Bahama I. p. 173 (1880); *ib.* List Bds. W. I. p. 28 (1885).

Common in many portions of the West Indies. It has been recorded from the Bahamas, Cuba, Jamaica, Porto Rico, Grenada, Guadeloupe, Santa Lucia, St. Thomas, St. Bartholomew, Sombrero, St. Croix, and Grand Cayman.

Nycticorax nycticorax nævius (Bodd.).

Ardea nævia Bodd. Tabl. Pl. Enl. 1783, p. 56.
Nycticorax vulgaris D'Orb. in La Sagra's Hist. Nat. Cuba, Ois. p. 208 (1840).
Nycticorax americanus Gosse. Bds. Jam. p. 344 (1847). — Albrecht, J. f. O. 1862, p. 206 (Jamaica).
Nycticorax gardeni Brewer, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—Gundl. J. f. O. 1862, p. 83 (Cuba).—A. & E. Newton, Handb. Jamaica, p. 111 (1881).
Nyctiardea gardeni March, Pr. Acad. Nat. Sci. Phila. 1864, p. 65 (Jamaica).—Gundl. Repert. Fisico-Nat. Cuba, I, p. 350 (1866); *ib.* J. f. O. 1875, p. 310 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 362 (1878) (Porto Rico).
Ardea nycticorax Sundev. Oefv. K. Vet. Akad. For. 1869, p. 602 (Porto Rico).
Nyctiardea grisea nævia Cory, List Bds. W. I. p. 28 (1885).
Nycticorax nycticorax nævius Zeledon, Pr. U. S. Nat. Mus. VIII, p. 113 (1885).

Recorded from Greater Antilles.

Genus **Botaurus** Steph.

Botaurus Stephens, Shaw's Gen. Zool. XI, p. 592, 1819.

Botaurus lentiginosus (Mont.). ✓

Ardea lentiginosa Mont. Orn. Dict. Suppl. 1813.—Lemb. Aves Cuba, p. 82 (1850).
Botaurus minor Gosse, Bds. Jam. p. 346 (1847).—Albrecht, J. f. O. 1862, p. 206 (Jamaica).—Gundl. J. f. O. 1862, p. 83 (Cuba).
Botaurus lentiginosus Brewer, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—March, Pr. Acad. Nat. Sci. Phila. 1864, p. 65 (Jamaica).—Gundl. Repert. Fisico-Nat. Cuba, I, p. 350 (1866); *ib.* J. f. O. 1874, p. 313 (Porto Rico); *ib.* 1875, p. 309 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 361 (1878) (Porto Rico).—A. & E. Newton, Handb. Jamaica, p. 111 (1881). — Cory, List Bds. W. I. p. 28 (1885).

Accidental in Cuba, Jamaica, and Porto Rico.

Genus **Ardetta** Gray.

Ardetta Gray, List of Gen. App. p. 13, 1842.

Ardetta exilis (GMEL.).

Ardea exilis GMEL. Syst. Nat. I, p. 648 (1788).—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 205 (1840).—BRYANT, Pr. Bost. Soc. Nat. Hist. X, p. 257 (1866) (Porto Rico).—SUNDEV. Oefv. K. Vet. Akad. For. 1869, p. 602 (Porto Rico).

Ardeola exilis GOSSE, Bds. Jam. p. 343 (1847).

Ardetta exilis BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—SCL. P. Z. S. 1861, p. 81 (Jamaica).—ALBRECHT, J. f. O. 1862, p. 206 (Jamaica).—MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 64 (Jamaica).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 350 (1866); *ib.* J. f. O. 1875, p. 308 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 360 (1878) (Porto Rico).—CORY, Bds. Bahama I. p. 174 (1880).—A. & E. NEWTON, Handb. Jamaica, p. 111 (1881).—CORY, List Bds. W. I. p. 28 (1885).

Recorded from the Bahamas, Cuba, Jamaica, and Porto Rico.

FAMILY GRUIDÆ.

GENUS **Grus** LINN.

Grus LINNÆUS, Syst. Nat. 1735.

Grus mexicana MÜLL.

Grus mexicana MÜLL. Syst. Nat. Suppl, p. 110 (1776).—CORY, List Bds. W. I. p. 29 (1885).

Grus poliophæa LEMB. Aves Cuba. p. 80 (1850).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).

Grus canadensis GUNDL. J. f. O. 1856, p. 339 (Cuba); *ib.* 1862, p. 81 (Cuba).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba)?—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 347 (1866); *ib.* J. f. O. 1875, p. 293 (Cuba).

Accidental in Cuba.

FAMILY ARAMIDÆ.

GENUS **Aramus** VIEILL.

Aramus VIEILLOT, Analyse, 1816.

Aramus giganteus (BONAP.).

Rallus giganteus BP. Journ. Acad. Nat. Sci. Phila. V, p. 31 (1825).

Aramus guarauna D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 256 (1840).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).

Aramus scolopaceus Gosse, Bds. Jam. p. 355 (1847).—Sallé, P. Z. S. 1857, p. 236 (San Domingo).

Aramus giganteus Scl. P. Z. S. 1861, p. 81 (Jamaica).—Gundl. Repert. Fisico-Nat. Cuba, I, p. 360 (1866).—Bryant, Pr. Bost. Soc. Nat. Hist. X, p. 257 (1866) (Porto Rico); *ib.* XI, p. 97 (1867) (San Domingo).—Sundev. Oefv. K. Vet. Akad. For. 1869, p. 601 (Porto Rico).—Gundl J. f. O. 1875, p. 353 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 387 (1878) (Porto Rico).—A. & E. Newton, Handb. Jamaica, p. 115 (1881).—Cory, List Bds. W. I. p. 29 (1885).

Notherodius scolopaceus Gundl. J. f. O. 1862, p. 89 (Cuba).

Aramus scolopaceus giganteus Cory, Bull. Nutt. Orn. Club, VI, p. 155 (1881) (Haiti).

Aramus pictus Cory, Bds. Haiti and San Domingo, p. 157 (1885).

Common in the Greater Antilles.

Family JACANIDÆ

Genus Jacana Briss.

Jacana Brisson, Orn. V, p. 121 (1760).

Jacana violacea (Cory).

Parra jacana D'Orb. in La Sagra's Hist. Nat. Cuba, Ois. p. 249 (1840).—Gundl. J. f. O. 1856, p. 425 (Cuba).—Brewer, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—Gundl. J. f. O. 1862, p. 89 (Cuba); *ib.* Repert. Fisico-Nat. Cuba, I, p. 360 (1866); *ib.* J. f. O. 1875, p. 338 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 385 (1878) (Porto Rico)?

Parra violacea Cory, Bull. Nutt. Orn. Club, VI, pp. 130, 155 (1881) (Haiti); *ib.* List Bds. W. I. p. 29 (1885).

Parra gymnostoma Cory, Bds. Haiti & San Domingo, p. 159 (1885).

Sp. Char. *Male:*—Bill and comb pale orange; bare skin at the base of the lower mandible pale bluish white; head, neck, and upper breast dark lustrous green; back and wing-coverts purple, shading into rich golden brown near the rump; rump and tail-coverts purple; underparts dark purple, showing a tinge of dark rufous on the crissum; most of the primaries and secondaries bright yellow, edged with brown; tail rufous brown; carpal spur pale orange; legs and feet dull olive; iris brown.

Length, 9; wing, 5.50; tail, 2.25; tarsus, 2.25; bill, 1.40

Habitat. Cuba, Haiti, and San Domingo.

Since the publication of the 'Birds of Haiti and San Domingo,' I have examined several specimens of *Jacana* from Cuba, and they agree exactly with the San Domingo bird, but all are considerably larger and brighter than specimens of *J. gymnostoma;* the coloration of the wattles is, I believe, also different. I have, therefore, restored the West Indian bird to the rank of a species pending further investigation.

FAMILY RALLIDÆ.

GENUS **Rallus** LINN.

Rallus LINNÆUS, Syst. Nat. I, p. 261, 1766.

✓ **Rallus maculatus** BODD.

Rallus maculatus BODD. ex Buff. Pl. Enl. p. 775 (1783). — SCHLEG. Mus. Pays-Bas, Ralli, p. 13 (1865). — SCL. & SAL. P. Z. S. 1868, p. 444; *ib.* Nom. Avium Neotr. p. 139 (1873). — CORY, List Bds. W. I. p. 29, (1885).

Rallus variegatus GMEL. Syst. Nat. I, p. 718 (1788). —BURM. Syst. Ueb. III, p. 382.—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 261 (1840).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860).

Aramides maculatus HARTL. Ind. Az. p. 23. — GRAY. Gen. Bds. p. 594 (1844-49).

Pardirallus variegatus BP. Compt. Rend. XLIII, p. 599.—GRAY, Handl. Bds. III, p. 56 (1871).

Limnopardalus variegatus GUNDL. J. f. O. 1856, p. 428; *ib.* Repert. Fisico-Nat. Cuba, I, p. 361 (1866); *ib.* J. f. O. 1875, p. 357.

SP. CHAR. — General plumage dull black; feathers on the back heavily marked with brown; whole body heavily blotched and mottled with white; rump brown; thighs smoky brown, marked with white above; chin nearly white; legs (in skin) pale yellow; bill green; a spot of scarlet on the base of the lower mandible.

Length (skin), 12; wing, 4.75; tail, 3; tarsus, 1.50; bill, 1.95.

Recorded from Cuba.

✓ **Rallus elegans** AUD.

Rallus elegans AUD. Orn. Biog. III, p. 27 (1835). — GUNDL. J. f. O. 1856, p. 427 (Cuba). — BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 360 (1866); *ib.* J. f. O. 1875, p. 355 (Cuba).—CORY, List Bds. W. I. p. 29 (1885).

Accidental in Cuba.

Rallus virginianus Linn.

Rallus virginianus Linn. Syst. Nat. I, p. 263 (1766).—Brewer, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—Gundl. Repert. Fisico-Nat. Cuba, I, p. 361 (1866); *ib.* J. f. O. 1875, p. 357 (Cuba).—Cory, List Bds. W. I. p. 29 (1885).

Accidental in Cuba.

Rallus longirostris crepitans (Gmel.).

Rallus crepitans Gmel. Syst. Nat. I, p. 713 (1788). — Bryant, Pr. Bost. Soc. Nat. Hist. VII, p. 122 (1859) (Bahamas).

Rallus longirostris Cory, Bds. Bahama I. p. 176 (1880).

Rallus longirostris crepitans Ridgw. Bull. Nutt. Orn. Club, V, p. 140 (1880).—Cory, List Bds. W. I. p. 29 (1885).

Bahamas in winter.

Rallus longirostris caribæus Ridgw.

Rallus longirostris D'Orb. in La Sagra's Hist. Nat. Cuba, Ois. p. 260 (1840). — Gosse, Bds. Jam. p. 364 (1847).—A. & E. Newton, Ibis, 1859, p. 260.—Cassin, Pr. Acad. Nat. Sci. Phila. 1860, p. 378. — A. & E. Newton, Handb. Jamaica, p. 114 (1881).

Rallus crepitans Brewer, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860).—Scl. P. Z. S. 1861, p. 81.—Albrecht, J. f. O. 1862, p. 206.—Gundl. Repert. Fisico-Nat. Cuba, I, p. 361 (1866); *ib.* J. f. O. 1875, p. 356; *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 388 (1878).—Lawr. Pr. U. S. Nat. Mus. I, pp. 461, 487 (1878).

"*Rallus elegans* March, Pr. Acad. Nat. Sci. Phila. 1864, p. 69"?

Rallus longirostris var. *caribæus* Ridgw. Bull. Nutt. Orn. Club, V, p. 140 (1880). — Bd. Bwr. & Ridgw. Hist. N. Am. W. Bds. I, p. 359 (1884).

Rallus longirostris caribæus Cory, List Bds. W. I. p. 29 (1885).

This form is very closely allied to the North American bird; the principal difference being that those from the West Indies usually show olivaceous striping on the back, more or less distinct.

Habitat. Antilles.

Rallus coryi Maynard.

Rallus coryi Maynard, American Exchange and Mart, Boston, Jan. 15 (1887); *ib.* Feb. 5 (1887).

Sp. Char. — "Above pale yellowish brown, streaked with pale ashy; wings light reddish, becoming paler on the outer edges; beneath pale ashy tinged with reddish across the breast, becoming white on the throat and abdomen, banded faintly on sides and flanks with white and pale ashy." (Maynard, orig. descr., l. c.)

Length, 11.50; wing, 6; tail, 2.10; tarsus, 1.75; bill, 2.15.

HABITAT. Andros Island, Bahamas.

GENUS **Porzana** VIEILL.

Porzana VIEILLOT, Analyse, p. 61, 1816.

Porzana concolor (GOSSE).

Rallus concolor GOSSE, Bds. Jam. p. 369 (1847).—ALBRECHT, J. f. O. 1862, p. 206.—MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 69.

Corethrura cayennensis MOORE, P. Z. S. 1859, p. 64.—SCL. & SALV. Ibis, 1859, p. 230.

Corethrura guatemalensis LAWR. Pr. Acad. Nat. Sci. Phila. 1863, p. 106.

Rallina castanea SCHLEG. Mus. Pays-Bas, Ralli, p. 17 (1865).

Porzana concolor SCL. & SALV. P. Z. S. 1868, p. 452; *ib.* Nom. Avium Neotr. p. 140 (1873).—A. & E. NEWTON, Handb. Jamaica, p. 114 (1881).—CORY, List Bds. W. I. p. 30 (1885).

Rufirallus concolor GRAY, Handl. Bds. III, p. 61 (1871).

SP. CHAR. *Male*:—Head dark olive, showing a tinge of rufous on the forehead; back olive, shading into rufous brown on the wing-coverts; sides of the head pale reddish brown, brightest on the cheeks; chin white, shading into clear reddish brown on the lower throat and breast, rest of underparts reddish brown; under surface of wings dull slate color.

The sexes are similar.

Length (skin), 9.25; wing, 5.25; tarsus, 1.75; bill, 1.10.

HABITAT. Jamaica.

Porzana flaviventris (BODD.).

Rallus flaviventer "BODD. Pl. Enl. (1783)."

Rallus minutus GMEL. Syst. Nat. I, p. 719 (1788).—LEMB. Aves Cuba, p. 109 (1850).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860).

Ortygometra minuta BURM. Syst. Ueb. III, p. 388.—GOSSE, Bds. Jam. p. 372 (1847).

Rallus superciliaris VIEILL. Nouv. Dict. XXVIII, p. 565.

Ortygometra flaviventris GRAY, Gen. Bds. III, p. 593 (1844–49).—HARTL. Ind. Az. p. 24.

Laterallus gossei BP. Compt. Rend. XLIII, p. 599 (1856).

Erythra minuta BP. Compt. Rend. XLIII, p. 600 (1856).

Crybastus gossii CAB. J. f. O. 1856, p. 428.—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 361 (1866); *ib.*, J. f. O. 1875, p. 358.

Crex minuta SCL. P. Z. S. 1861, p. 81.

Porzana minuta MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 69.
Porzana flaviventer SCHLEG. Mus. Pays-Bas, I, p. 31 (1865).—A. & E. NEWTON, Handb. Jamaica, p. 114 (1881).
Porzana flaviventris SCL. & SALV. P. Z. S. 1868, p. 455; *ib.* Nom. Avium Neotr. p. 140 (1873).—CORY, List Bds. W. I. p. 30 (1885).
Crybastus minutus GRAY, Handl. Bds. III, p. 61 (1871).

SP. CHAR.—Top of head and a line through the eye, from the bill, dark brown, darkest on the crown, and shading into light brown on the back of the neck; middle back dark brown and black, streaked with white; rump and upper tail-coverts chestnut brown, sometimes touched with white; tail-feathers black, edged with brown, and dotted with white; wing-coverts light cinnamon-brown; scapularies marked with black and white; quills pale brown; outer web of first primaries dull white; underparts white; throat white, tinged with very pale yellowish brown; flanks barred with white and black; bill dark.

Length (skin), 5.75; wing, 2.75; tail, 1.15; tarsus, .85; bill, .60.

HABITAT. Cuba and Jamaica.

Porzana jamaicensis (GMEL.).

Rallus jamaicensis GMEL. Syst. Nat. I, p. 718 (1788).
Ortygometra jamaicensis GOSSE, Bds. Jam. p. 375 (1847).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).
Creciscus jamaicensis GUNDL. J. f. O. 1856, p. 428 (Cuba); *ib.* 1875, p. 360 (Cuba); *ib.* 1881, p. 401 (Cuba).
Porzana jamaicensis SCL. P. Z. S. 1861, p. 81 (Jamaica).—ALBRECHT, J. f. O. 1862, p. 206 (Jamaica).—MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 69 (Jamaica).—A. & E. NEWTON, Handb. Jamaica, p. 114 (1881).—CORY, List Bds. W. I. p. 30 (1885).

Recorded from Cuba and Jamaica.

Porzana carolina (LINN.).

Rallus carolinus LINN. Syst. Nat. I, p. 363 (1766).—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 262 (1840).—BRYANT, Pr. Bost. Soc. Nat. Hist. X, p. 257 (1866) (Porto Rico).—SUNDEV. Oefv. K. Vet. Akad. For. 1869, p. 587 (St. Bartholomew); *ib.* p. 601 (Porto Rico).
Ortygometra carolina GOSSE, Bds. Jam. p. 371 (1847).—BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).
Porzana carolina GUNDL. J. f. O. 1856, p. 428 (Cuba).—A. & E. NEWTON, Ibis, 1859, p. 260 (St. Croix).—SCL. P. Z. S. 1861, p. 81 (Jamaica).—MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 69 (Jamaica).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 361 (1866).—BRACE, Pr. Bost. Soc. Nat. Hist. XIX, p. 241 (1877) (Bahamas).—GUNDL. J. f. O. 1875, p. 358 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 390 (1878) (Porto

Rico).—CORY, Bds. Bahama I. p. 176 (1880).—A. & E. NEWTON, Handb. Jamaica, p. 114 (1881).—CORY, List Bds. W. I. p. 30 (1885).—WELLS, List Bds. Grenada, p. 9 (1886).

This species is found throughout the West Indies; numerous references from the Bahamas and Antilles.

Porzana noveboracensis (GMEL.).

Fulica noveboracensis GMEL. Syst. Nat. I, p. 701 (1788).
Porzana noveboracensis BD. BWR. & RIDGW. Hist. N. Am. W. Bds. I, p. 375 (1884) (Cuba).—CORY, List Bds. W. I. p. 30 (1885).

Accidental in Cuba.

GENUS Gallinula BRISS.

Gallinula BRISSON, Orn. VI, p. 3, 1760.

Gallinula galeata (LICHT.).

Crex galeata LICHT. Verz. Doubl. p. 826 (1823).
Gallinula chloropus D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 268 (1840).
Gallinula galeata GOSSE, Bds. Jam. p. 381 (1847).—SALLÉ, P. Z. S. 1857, p. 237 (San Domingo).—A. & E. NEWTON, Ibis, 1859, p. 260 (St. Croix). — BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 122 (1859) (Bahamas); *ib.* BREWER, p. 307 (1860) (Cuba). — CASSIN, Pr. Acad. Nat. Sci. Phila. 1860, p. 378 (St. Thomas). — SCL. P. Z. S. 1861, p. 81 (Jamaica). — MARCH. Pr. Acad. Nat. Sci. Phila. 1864, p. 69 (Jamaica).—BRYANT, Pr. Bost. Soc. Nat. Hist. X, p. 257 (1866) (Porto Rico). — SUNDEV. Oefv. K. Vet. Akad. For. 1869, p. 601 (Porto Rico).—GUNDL. J. f. O. 1875, p. 360 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 391 (1878) (Porto Rico).—LAWR. Pr. U. S. Nat. Mus. I, p. 276 (1878) (Grenada); *ib.* p. 461 (Guadeloupe).—ALLEN, Bull. Nutt. Orn. Club, V, p. 169 (1880) (Santa Lucia). — CORY, Bds. Bahama I. p. 177 (1880). — A. & E. NEWTON, Handb. Jamaica, p. 115 (1881). — CORY, Bull. Nutt. Orn. Club, VI, p. 155 (1881) (Haiti); *ib.* Bds. Haiti & San Domingo, p. 161 (1885); *ib.* List. Bds. W. I. p. 30 (1885). — WELLS, List Bds. Grenada, p. 9 (1886).—CORY, Auk, III, p. 502 (1886) (Grand Cayman); *ib.* Ibis, 1886, p. 474 (Marie Galante).
Galinuela galeata GUNDL. Repert. Fisico-Nat. Cuba, I, p. 362 (1866).

Common in the Bahamas and Antilles.

GENUS Ionornis REICH.

Ionornis REICHENBACH, Syst. Av. p. 21, 1853.

Ionornis martinica (Linn.).

Fulica martinica Linn. Syst. Nat. I, p. 259 (1766).

Porphyrio martinica D'Orb. in La Sagra's Hist. Nat. Cuba, Ois. p. 265 (1840).—Gosse, Bds. Jam. p. 377 (1847).—Brewer, Pr. Bost. Soc. Nat. Hist. VII, p. 307 (1860) (Cuba).—Cory, Bds. Bahama I. p. 178 (1880); *ib.* Bull. Nutt. Orn. Club, VI, p. 155 (1881) (Haiti).

Gallinula martinica Bryant, Pr. Bost. Soc. Nat. Hist. VII, p. 122 (1859) (Bahamas); *ib.* X, p. 257 (1866) (Porto Rico).—March, Pr. Acad. Nat. Sci. Phila. 1864, p. 69 (Jamaica).—Sundev. Oefv. K. Vet. Akad. For. 1869, p. 601 (Porto Rico).

Porphyrio martinicus Scl. P. Z. S. 1861, p. 81 (Jamaica); *ib.* 1872, p. 653 (Santa Lucia).—Lawr. Pr. U. S. Nat. Mus. I, p. 197 (1878) (St. Vincent); *ib.* p. 487 (Dominica).—Allen, Bull. Nutt. Orn. Club, V, p. 169 (1880) (Santa Lucia).—A. & E. Newton, Handb. Jamaica, p. 115 (1881).

Porphyrula martinica Gundl. Repert. Fisico-Nat. Cuba, I, p. 362 (1866); *ib.* J. f. O. 1874, p. 314 (Porto Rico); *ib.* 1875, p. 361 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 392 (1878) (Porto Rico).

Ionornis martinica Cory, Bds. Haiti & San Domingo, p. 162 (1885); *ib.* List Bds. W. I. p. 30 (1885).—Wells, List Bds. Grenada, p. 9 (1886).

Common in the Bahamas and Antilles.

Genus Fulica Linn.

Fulica Linnæus, Syst. Nat. 1735; *ib.* I, p. 152, 1758.

Fulica americana Gmel.

Fulica americana Gmel. Syst. Nat. I, p. 704 (1788).—Gosse, Bds. Jam. p. 384 (1847).—A. & E. Newton, Ibis, 1859, p. 260 (St. Croix)?—Bryant, Pr. Bost. Soc. Nat. Hist. VII, p. 122 (1859) (Bahamas); *ib.* Brewer, p. 307 (1860) (Cuba).—Scl. P. Z. S. 1861, p. 81 (Jamaica).—March, Pr. Acad. Nat. Sci. Phila. 1864, p. 69 (Jamaica).—Gundl. Repert. Fisico-Nat. Cuba, I, p. 363 (1866).—Sundev. Oefv. K. Vet. Akad. For. 1869, p. 587 (St. Bartholomew); *ib.* p. 601 (Porto Rico).—Gundl. J. f. O. 1875, p. 363 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 394 (1878) (Porto Rico).—Cory, Bds. Bahama I. p. 178 (1880).—A. & E. Newton, Handb. Jamaica, p. 115 (1881).—Cory, Bull. Nutt. Orn. Club, VI, p. 155 (1881) (Haiti); *ib.* Bds. Haiti & San Domingo, p. 163 (1885); *ib.* List Bds. W. I. p. 30 (1885).—Wells, List Bds. Grenada, p. 9 (1886).

Fulica atra D'Orb. in La Sagra's Hist. Nat. Cuba, Ois. p. 211 (1840).

Common in the Bahamas and Antilles.

Fulica caribæa Ridgw.

Fulica caribæa Ridgw. Pr. U. S. Nat. Mus. VII, p. 358 (1884). — Cory, List Bds. W. I. p. 30 (1885).

"Sp. Char.—Similar to *F. americana*, but differing in the slenderer bill and in the form and color of the frontal shield. Frontal shield oval or elliptical, much wrinkled, .70-.90 inch long, and .35-.50 wide, in the breeding season; its color, pale brownish (whitish in life?) instead of chestnut or liver brown, as in *F. americana*." (Ridgw. l. c. orig. descr.).

Habitat. Guadeloupe and St. John.

Family ANATIDÆ.

Genus Anser Briss.

Anser Brisson, Orn. 1760.

Anser albifrons gambeli. ✓

Anser albifrons Lemb. Aves Cuba, p. 112 (1850).—Cory, List Bds. W. I. p. 30 (1885).

Anser gambeli Hartl. Rev. Mag. Zool. 1852, p. 7.—Cab. J. f. O. 1857, p. 226 (Cuba).—Brewer, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).

Anser gambelii Gundl. Repert. Fisico-Nat. Cuba, I. p. 387 (1866); *ib.* J. f. O. 1875, p. 375 (Cuba).—Cory, List Bds. W. I. p. 30 (1885).

Accidental in Cuba in winter.

Genus Chen Boie.

Chen Boie, Isis, 1822, p. 563.

Chen hyperborea (Pall.). ✓

Anser hyperboreus Pall. Spic. Zool. VI, pp. 80, 25 (1769).—Lemb. Aves Cuba, p. 111 (1850). — Brewer, Pr. Bost. Soc. Nat. Hist, VII, p. 308 (1860) (Cuba).—March, Pr. Acad. Nat. Sci. Phila. 1864, p. 70 (Jamaica).—Cory, Bds. Bahama I. p. 182 (1880).

Chen hyperboreus Gosse, Bds. Jam. p. 408 (1847).—Albrecht, J. f. O. 1862, p. 207 (Jamaica). — Gundl. Repert. Fisico-Nat. Cuba, I, p. 387 (1866); *ib.* J. f. O. 1875, p. 371 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 399 (1878) (Porto Rico). — A. & E. Newton, Handb. Jamaica. p. 112 (1881).—Cory, List Bds. W. I. p. 30 (1885).

Accidental in Bahamas, Cuba, Jamaica and Porto Rico.

Chen cærulescens (Linn.). ✓

Anas caerulescens Linn. Syst. Nat. I, 10th ed. p. 124 (1758); *ib.* 12th ed. p. 198 (1766).
Chen caerulescens Gundl. Repert. Fisico-Nat. Cuba, I, p. 387 (1866); *ib.* J. f. O. 1875, p, 374 (Cuba).—Cory, List. Bds. W. I. p. 30 (1885).
Anser caerulescens Bryant, Pr. Bost. Soc. Nat. Hist. XI, p. 70 (1867) (Bahamas).

Recorded from the Bahamas and Cuba. Possibly not separable from the preceding species, of which it may prove to be a race.

Genus Branta Scopoli.

Branta Scopoli, Ann. i Hist. Nat. p. 67, 1769.

Branta canadensis (Linn.).

Anas canadensis Linn. Syst. Nat. I, p. 198 (1766).
Branta canadensis Bannister, Pr. Acad. Nat. Sci. Phila. 1870, p. 131.
Bernicla canadensis A. & E. Newton, Handb. Jamaica, p. 112 (1881).—Cory, Revised List Bds. W. I. p. 30 (1886).

Recorded from Jamaica.

Genus Dendrocygna Swains.

Dendrocygna Swainson, Classif. Birds, II, p. 365, 1837.

Dendrocygna arborea (Linn.). ✓

Anas arborea Linn. Syst. Nat. I, p. 207 (1766).—Gmel. Syst. Nat. I, p. 540 (1788).—Vieill. Enc. Méth. p. 141 (1823).—D'Orb. in La Sagra's Hist. Nat. Cuba, I, p. 291 (1840).—Sundev. Oefv. K. Vet. Akad. For. 1869, p. 603.
Anas jacquini Gmel. Syst. Nat. I, p. 536 (1788).
Dendrocygna arborea Eyton, Mon. Anat. p. 110 (1838).—Gosse, Bds. Jam. p. 395 (1847).—Cab. J. f. O. 1857, p. 227.—A. & E. Newton, Ibis, 1859, p. 366.—Bryant, Pr. Bost. Soc. Nat. Hist. VII, p. 122 (1859); *ib.* XI, p. 70 (1866).—Albrecht, J. f. O. 1862, p. 206.—March, Pr. Acad. Nat. Sci. Phila. 1864, p. 70.—Gundl. Repert. Fisico-Nat. Cuba, I, p. 387 (1866); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 400 (1878).—Scl. & Salv. P. Z. S. 1876, p. 375.—Cory, Bds. Bahama I. p. 183 (1880).—A. &. E. Newton, Handb. Jamaica, p. 112 (1881).—Cory, Bds. Haiti & San Domingo, p. 166 (1885); *ib.* List Bds. W. I. p. 30 (1885).—Bd. Bwr. & Ridgw. Hist. N. Am. W. Bds. I, p. 480 (1884).

Dendrocygnus arborea BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860).
Dendrocygna autumnalis? TAYLOR, Ibis, 1864, p. 172.

SP. CHAR. *Male:*—Head with black band on the crown, continuing in narrow stripes to the nape; forehead and over the eye reddish brown, shading into dull white on the throat, and mottled brown and white on the sides of the head and neck; breast and upper parts brown, the feathers broadly edged with tawny; rump and tail black; underparts brownish white, heavily spotted and banded upon the sides, the spots becoming very small and faint upon the abdomen; most of the primaries slate-color, becoming brownish at the tips; legs and bill black.

Length, 21.00; wing, 11.25; tarsus, 2.60; bill 2.00.

HABITAT. Bahamas and Antilles.

Dendrocygna autumnalis (LINN.).

Anas autumnalis LINN. Syst. Nat. I, p. 205 (1766).
Dendrocygna autumnalis GOSSE, Bds. Jam. p. 398 (1847).—ALBRECHT, J. f. O. 1862, p. 206 (Jamaica).—MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 70 (Jamaica).—A. & E. NEWTON, Handb. Jamaica, p. 112 (1881).—CORY, List Bds. W. I. p. 30 (1885).

Accidental in Jamaica.

Dendrocygna viduata (LINN.). ✓

Anas viduata LINN. Syst. Nat. I, p. 205 (1766).—GMEL. Syst. Nat. I, p. 536 (1788).—VIEILL. Enc. Méth. p. 132 (1823).
Dendrocygna viduata EYTON, Mon. Anat. p. 110 (1838).—ALBRECHT, J. f. O. 1861, p. 214.—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 388 (1866); *ib.* J. f. O. 1875, p. 377.—SCL. & SALV. P. Z. S. 1876, p. 376.—BD. BWR. & RIDGW. Hist. N. Am. W. Bds. I, p. 481 (1884).—CORY, List Bds. W. I. p. 30 (1885).
Dendrocygnus viduata BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860).

SP. CHAR. *Male:*—Entire front of head, including eye, cheeks and chin, white, tinged with brown; a patch of white on the middle of the throat, connecting with the white upper throat and chin by a narrow white line; rest of head and neck black; breast and upper back rufous brown; sides of the body thickly banded with narrow black and white lines; centre of the belly and lower breast black; feathers on the back edged with tawny; wings black; carpus and shoulder chestnut brown; wing-coverts showing an olive tinge; bill black; feet black.

The sexes are similar.

Length, 19.00; wing, 9,00; tail, 4.00; tarsus, 2.00; bill, 2.00.

Given by authors as occurring in Cuba; by some, claimed to have been introduced.

Genus Anas Linn.

Anas Linnæus, Syst. Nat. I, 10th ed. p. 122, 1758; *ib.* 12th ed. p. 194, 1766.

Anas strepera Linn.

Anas strepera Linn. Syst. Nat. I, 10th ed. p. 125 (1758); *ib.* 12th ed. p. 200 (1766).—March, Pr. Acad. Nat. Sci. Phila. 1864, p. 72 (Jamaica).—A. & E. Newton, Handb. Jamaica, p. 113 (1881).
Chaulelasmus streperus Gosse, Bds. Jam. p. 408 (1847).—Gundl. Repert. Fisico-Nat. Cuba, I, p. 389 (1866); *ib.* J. f. O. 1875, p. 381 (Cuba).
Anas streperus Cory, List Bds. W. I. p. 30 (1885).

Cuba and Jamaica in winter.

Anas boschas Linn.

Anas boschas Linn. Syst. Nat. I, p. 205 (1766).—Gosse, Bds. Jam. p. 408 (1847).—Bryant, Pr. Bost. Soc. Nat. Hist. VII, p. 122 (1859) (Bahamas); *ib.* Brewer, p. 308 (1860) (Cuba).—March, Pr. Acad. Nat. Sci. Phila. 1864, p. 72 (Jamaica).—Gundl. Repert. Fisico-Nat. Cuba, I, p. 388 (1866); *ib.* J. f. O. 1875, p. 378 (Cuba).—Cory, Bds. Bahama I. p. 184 (1880); *ib.* List Bds. W. I. p. 30 (1885).—Wells, List Bds. Grenada, p. 10 (1886).
Anas boscas A. & E. Newton, Handb. Jamaica, p. 113 (1881).

Accidental in Cuba, the Bahamas, Jamaica, and Grenada.

Anas obscura Gmel.

Anas obscura Gmel. Syst. Nat. I, p. 541 (1788).—Gosse, Bds. Jam. p. 408 (1847).—March, Pr. Acad. Nat. Sci. Phila. 1864, p. 72 (Jamaica).—A. & E. Newton, Handb. Jamaica, p. 113 (1881).—Bd. Bwr. & Ridgw. Hist. N. Am. W. Bds. I, p. 499 (1884) (Cuba?).—Cory, Revised List Bds. W. I. p. 30 (1886).
Anas fulvigula? Cory, List Bds. W. I. p. 30 (1885).

Cuba? Jamaica.

It is uncertain whether the Dusky Duck which, it is claimed, occurs in Jamaica, is *Anas fulvigula* Ridgw. or this species. Both occur in Florida.

Anas maxima, described by Gosse (Bds. Jam. p. 399, 1847), is supposed to be a hybrid.

Genus **Dafila** Steph.

Dafila Stephens, Shaw's Gen. Zool. XII, p. 126, 1824.

Dafila bahamensis (Linn.). ✓

Anas bahamensis Linn. Syst. Nat. I, p. 199 (1766).—Gmel. Syst. Nat. I, p. 516 (1788).—Max. Beitr. p. 925 (1831).—Sundev. Oefv. K Vet. Akad. For. 1869, p. 591.

Anas rubirostris Vieill. Nouv. Dict. V, p. 108 (1816).

Anas ilathera Vieill. Enc. Méth. p. 152 (1823).

Anas urophasianus Vig. Zool. Journ. IV, p. 357 (1829).

Phasianurus vigorsii Wagl. Isis, 1832, p. 1235.

Anas fimbriata Merrem, Ersch u. Gruber's Ency. sect. 1, XXXV, p. 35.

Dafila urophasianus Eyton, Mon. Anat. p. 112 (1838).

Peocilonetta bahamensis Eyton, Mon. Anat. p. 116 (1838).—Gosse, Bds. Jam. p. 408 (1847).—Scl. P. Z. S. 1860, p. 389.—Abbott, Ibis, 1861, p. 160.—Albrecht, J. f. O. 1862, p. 207.—March, Pr. Acad. Nat. Sci. Phila. 1864, p. 71.—Gundl. J. f. O. 1874, p. 314; *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 403 (1878); *ib.* J. f. O. 1881, p. 400.

Dafila bahamensis Hartl. Ind. Az. p. 27 (1847).—Cab. in Schomb. Guian. III, p. 763 (1848).—Scl. & Salv. P. Z. S. 1876, p. 393.—Lawr. Pr. U. S. Nat. Mus. I, p. 487 (1878).—A. & E. Newton, Handb. Jamaica, p. 113 (1881).—Cory, Bds. Bahama I. p. 185 (1880); *ib.* Bds. Haiti & San Domingo, p. 167 (1885); *ib.* List Bds. W. I. p. 31 (1885).

Sp. Char. *Male:*—General plumage tawny, mottled and streaked with brown; wings banded with lustrous green, black and tawny, in the order given; top of head and nape brown, finely mottled with dark brown; rest of head and throat white; a triangular patch on each side of the upper mandible lake red; tail tawny, becoming pale at the tip; legs black.

Length, 19.00; wing, 8.00; tail, 4.75; tarsus, 1.25; bill, 1.95.

Habitat. Bahamas and Antilles.

Dafila acuta (Linn.). ✓

Anas acuta Linn. Syst. Nat. I, p. 202 (1766).—Lemb. Aves Cuba, p. 113 (1850).

Dafila acuta Gosse, Bds. Jam. p. 408 (1847).—Cab. J. f. O. 1857, p. 227 (Cuba).—Brewer, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—Albrecht, J. f. O. 1862, p. 207 (Jamaica).—March, Pr. Acad. Nat. Sci. Phila. 1864, p. 71 (Jamaica).—Gundl. Repert. Fisico-Nat. Cuba, I, p. 388 (1860); *ib.* J. f. O. 1875, p. 378 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 402 (1878) (Porto Rico).—A. & E. Newton, Handb. Jamaica, p. 113 (1881).—Cory, List Bds. W. I. p. 31 (1885).

Recorded from Cuba, Jamaica, and Porto Rico.

Genus **Mareca** Steph.

Mareca Stephens, Shaw's Gen. Zool. XII, pt. II, p. 130, 1824.

Mareca americana (Gmel.). ✓

Anas americana Gmel. Syst. Nat. II, p. 526 (1788).—D'Orb. in La Sagra's Hist. Nat. Cuba, Ois. p. 293 (1840).—Sundev. Oefv. K. Vet. Akad. For. 1869, p. 603 (Porto Rico).

Mareca americana Gosse. Bds. Jam. p. 408 (1847).—Cab. J. f. O. 1857, p. 227 (Cuba). — Brewer, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—Newton, Ibis, 1860, p. 308 (St. Thomas).—March. Pr. Acad. Nat. Sci. Phila. 1864, p. 71 (Jamaica).—Gundl. Repert. Fisico-Nat. Cuba, I, p. 388 (1866); *ib.* J. f. O. 1875, p. 378 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 402 (1878) (Porto Rico).—A. & E. Newton, Handb. Jamaica, p. 113 (1881).—Cory, List Bds. W. I. p. 31 (1885).

Accidental in winter in the West Indies; records from Cuba, Jamaica, Porto Rico, and St. Thomas.

Cairina moschata is given by numerous writers from Cuba and Jamaica. It is claimed to have been introduced.

Genus **Querquedula** Steph.

Querquedula Stephens, Shaw's Gen. Zool. XII, p. 149, 1824.

Querquedula discors (Linn.). ✓

Anas discors Linn. Syst. Nat. I, p. 205 (1766).—D'Orb. in La Sagra's Hist. Nat. Cuba, Ois. p. 294 (1840).—Sundev. Oefv. K. Vet. Akad. For. 1869, p. 591 (St. Bartholomew); *ib.* p. 603 (Porto Rico).

Cyanopterus discors Gosse, Bds. Jam. p. 401 (1847).

Cyanopterus inornatus Gosse, Bds. Jam. p. 402 (1847).—Albrecht, J. f. O. 1862, p. 206 (Jamaica).

Querquedula discors Sallé, P. Z. S. 1857, p. 237 (San Domingo).—Bryant, Pr. Bost. Soc. Nat. Hist. VII, b. 122 (1859) (Bahamas).—Scl. P. Z. S. 1861, p. 82 (Jamaica).—March, Pr. Acad. Nat. Sci. Phila. 1864, p. 71 (Jamaica).—Gundl. Repert. Fisico-Nat. Cuba, I, p. 389 (1866).—Lawr. Ann. Lyc. N. Y. VIII, p. 101 (1867) (Sombrero).—Gundl. J. f. O. 1874, p. 314 (Porto Rico); *ib.* 1875, p. 380 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 404 (1878) (Porto Rico).—Cory, Bds. Bahama I. p. 186 (1880).—A. & E. Newton, Handb. Jamaica, p. 113 (1881).—Cory, Bds. Haiti & San Domingo, p. 168 (1885). — Cory, List Bds. W. I. p. 31 (1885).—Wells, List Bds. Grenada, p. 10 (1886).

Pterocyanea discors Brewer, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).

Querquedula inornata March, Pr. Acad. Nat. Sci. Phila. 1864, p. 71 (Jamaica).—A. & E. Newton, Handb. Jamaica, p. 113 (1881).

Anas (*Querquedula*) *discors* Bryant, Pr. Bost. Soc. Nat. Hist. XI, p. 97 (1867) (San Domingo).

Abundant throughout the Bahamas and Antilles.

Querquedula carolinensis (Gmel.). ✓

Anas carolinensis Gmel. Syst. Nat. I, p. 533 (1788).—Lemb. Aves Cuba, p. 114 (1850).

Querquedula carolinensis Gosse, Bds. Jam. p. 408 (1847).—Brewer, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—Gundl. J. f. O. 1862, p. 92 (Cuba).—March, Pr. Acad. Nat. Sci. Phila. 1864, p. 72 (Jamaica).—Cory, Bds. Bahama I. p. 187 (1880).—A. & E. Newton, Handb. Jamaica, p. 113 (1881).—Cory, List Bds. W. I. p. 31 (1885).—Wells, List Bds. Grenada, p. 10 (1886).

Nettion carolinensis Bryant, Pr. Bost. Soc. Nat. Hist. VII, p. 122 (1859) (Bahamas).—Gundl. Repert. Fisico-Nat. Cuba, I, p. 389 (1866); *ib.* J. f. O. 1875, p. 381 (Cuba).

This species has been taken in winter in the Bahama Islands, Cuba, Jamaica, and Grenada.

Querquedula cyanoptera is given by Brewer as occurring in Cuba (Pr. Bost. Soc. Nat. Hist. VII, p. 308, 1860). If the species in question was correctly identified, it is of rare occurrence in the West Indies.

Nyroca ferruginea is given by W. T. March, as occurring in Jamaica (Pr. Acad. Nat. Sci. Phila. 1864, p. 72). This record is undoubtedly incorrect. The bird in question was probably some other species wrongly identified, possibly *Querquedula cyanoptera*.

Genus Spatula Boie.

Spatula Boie, Isis, 1822, p. 564.

Spatula clypeata (Linn.). ✓

Anas clypeata Linn. Syst. Nat. I, 10th ed. p. 124 (1758); *ib.* 12th ed. p. 200 (1766).—Lemb. Aves Cuba, p. 115 (1856).—Sundev. Oefv. K. Vet. Akad. For. 1869, p. 603 (Porto Rico).

Anas mexicana D'Orb. in La Sagra's Hist. Nat. Cuba, Ois. p. 299 (1840).

Rhyncaspis clypeata Gosse, Bds. Jam. p. 408 (1847).

Rhynchaspis clypeata Brewer, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).

Spatula clypeata NEWTON, Ibis, 1860, p. 308 (St. Thomas).—SCL. P. Z. S. 1861, p. 82 (Jamaica).—MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 71 (Jamaica).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 389 (1866); *ib.* J. f. O. 1874, p. 314 (Porto Rico); *ib.* 1875, p. 379 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 404 (1878) (Porto Rico).—A. & E. NEWTON, Handb. Jamaica, p. 113 (1881).—CORY, List Bds. W. I. p. 31 (1885).

Querquedula clypeata ALBRECHT, J. f. O. 1862, p. 207 (Jamaica).

West Indies in winter; records from Cuba, Jamaica, Porto Rico, and St. Thomas.

GENUS **Aix** BOIE.

Aix BOIE. Isis, 1828, p. 329.

Aix sponsa (LINN.).

Anas sponsa LINN. Syst. Nat. I, p. 207 (1766).—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 288 (1840).

Aix sponsa GOSSE, Bds. Jam. p. 408 (1847).—CAB. J. f. O. 1857, p. 226 (Cuba).—MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 72 (Jamaica).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 389 (1866); *ib.* J. f. O. 1875, p. 381 (Cuba).—A. & E. NEWTON, Handb. Jamaica, p. 113 (1881).—CORY, List Bds. W. I. p. 31 (1885).

Dendrocygnus sponsa BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).

Cuba and Jamaica in winter.

GENUS **Aythya** BOIE.

Aythya BOIE, Isis, 1822, p. 564.

Aythya affinis (EYTON).

Fuligula affinis EYTON, Mon. Anat. p. 157 (1838). — GOSSE, Bds. Jam. p. 408 (1847).—ALBRECHT, J. f. O. 1862, p. 207 (Jamaica).—CORY, Bds. Bahama I. p. 187 (1880); *ib.* List Bds. W. I. p. 31 (1885).

Anas marila D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 295 (1840) (?)

Fulix affinis A. & E. NEWTON, Ibis, 1859, p. 366 (St. Croix) (?)—MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 71 (Jamaica).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 390 (1866); *ib.* J. f. O. 1874, p. 314 (Porto Rico); *ib.* 1875, p. 382 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 405 (1878) (Porto Rico).

Fuligula marila BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).

Fuligula mariloides Gundl. J. f. O. 1862, p. 92 (Cuba).
Nyroca affinis A. & E. Newton, Handb. Jamaica, p. 113 (1881).

Recorded from Porto Rico, Cuba, Bahamas, Jamaica, and St. Croix.

Aythya collaris (Donov.).

Anas collaris Donov. Brit. Birds, VI, pl. 47 (1809).
Fuligula rufitorques Gosse, Bds. Jam. p. 408 (1847).—Lemb. Aves Cuba, p. 117 (1850).—Brewer, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—Albrecht, J. f. O. 1862, p. 207 (Jamaica).
Fulix collaris Bryant, Pr. Bost. Soc. Nat. Hist. VII, p. 122 (1859) (Bahamas).—March, Pr. Acad. Nat. Sci. Phila. 1864, p. 72 (Jamaica).—Gundl. Repert. Fisico-Nat. Cuba, I, p. 390 (1866); *ib.* J. f. O. 1875, p. 383 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 406 (1878) (Porto Rico).
Anas (*Fuligula*) *rufitorques* Gundl. J. f. O. 1871, p. 283 (Cuba).
Fuligula collaris Cory, Bds. Bahama I. p. 188 (1880); *ib.* List Bds. W. I. p. 31 (1885).
Nyroca collaris A. & E. Newton, Handb. Jamaica, p. 113 (1881).

Bahamas, Cuba, Jamaica, and Porto Rico, in winter.

Aythya vallisneria (Wils.).

Anas vallisneria Wils. Am. Orn. VIII, p. 103 (1814).—Cory, List Bds. W. I. p. 30 (1885).
Nyroca valisneria Brewer, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).
Aythya valisneria March, Pr. Acad. Nat. Sci. Phila. 1864, p. 72 (Jamaica)
Aythyia vallisneria Gundl. Repert. Fisico-Nat. Cuba, I, p. 390 (1866)); *ib.* J. f. O. 1875, p. 382 (Cuba).
Nyroca vallisneria A. & E. Newton, Handb. Jamaica, p. 113 (1881).

Recorded from Cuba and Jamaica.

Aythya americana (Eyton).

Fuligula americana Eyton, Mon. Anat. p. 155 (1838).—Gosse, Bds. Jam. p. 408 (1847).—Cory, List Bds. W. I. p. 31 (1885).
Aythya americana Bryant, Pr. Bost. Soc. Nat. Hist. VII, p. 122 (1859) (Bahamas).—March, Pr. Acad. Nat. Sci. Phila. 1864, p. 72 (Jamaica).
Fuligula ferina var. *americana* Cory, Bds. Bahama I. p. 189 (1880).
Nyroca americana A. & E. Newton, Handb. Jamaica, p. 113 (1881).

A winter visitant; records from the Bahamas, Cuba, and Jamaica.

GENUS **Charitonetta** STEJN.

Charitonetta STEJNEGER, Orn. Expl. Kamtsch. p. 163, 1885.

Charitonetta albeola (LINN.).

Anas albeola LINN. Syst. Nat. I, p. 199 (1766).
Clangula albeola BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—CORY, List Bds. W. I. p. 31 (1885).
Bucephala albeola GUNDL. Repert. Fisico-Nat. Cuba, I, p. 390 (1866); *ib.* J. f. O. 1875, p. 383 (Cuba).

Accidental in Cuba in winter.

GENUS **Glaucionetta** STEJN.

Glaucionetta STEJNEGER, Pr. U. S. Nat. Mus. VIII, p. 409, 1885.

Glaucionetta clangula americana (BONAP.).

Clangula americana BP. Comp. List, 1838, p. 58.
Clangula glaucion LAWR. Pr. U. S. Nat. Mus. I, p. 241 (1878) (Barbuda).
Clangula glaucion americana BD. BWR. & RIDGW. Hist. N. Am. W. Bds. II, p. 44 (1884) (Cuba) (?).
Clangula glaucium CORY, Revised List Bds. W. I. p. 31 (1886).

Recorded from Cuba and Barbuda.

GENUS **Œdemia** FLEMING.

Œdemia FLEMING, Philos. Zool. II, p. 260, 1822.

Œdemia perspicillata (LINN.).

Anas perspicillata LINN. Syst. Nat. I, p. 201 (1766).
Œdemia perspicillata GOSSE, Bds. Jam. p. 408 (1847).—ALBRECHT, J. f. O. 1862, p. 207 (Jamaica).—MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 72 (Jamaica).—A. & E NEWTON, Handb. Jamaica, p. 113 (1881).—CORY, List Bds. W. I. p. 31 (1885).

Claimed to have occurred in Jamaica.

GENUS **Erismatura** BONAP.

Erismatura BONAPARTE, Saggio Distr. Met. p. 143, 1832.

Erismatura rubida (Wils.). ✓

Anas rubida Wils. Am. Orn. VIII, pp. 128-130 (1814).

Erismatura spinosa Gosse, Bds. Jam. p. 404 (1847).—Albrecht, J. f. O. 1862, p. 207 (Jamaica).

Fuligula rubida Lemb. Aves Cuba, p. 118 (1850).

Erismatura rubida Bryant, Pr. Bost. Soc. Nat. Hist. VII, p. 122 (1859) (Bahamas).—Gundl. Repert. Fisico-Nat. Cuba, I, p. 390 (1866); *ib.* J. f. O. 1874, p. 314 (Porto Rico); *ib.* 1875, p. 384 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 407 (1878) (Porto Rico).—Cory, Bds. Bahama I. p. 189 (1880).—A. & E. Newton, Handb. Jamaica, p. 113 (1881).—Cory, List Bds. W. I. p. 31 (1885).—Wells, List Bds. Grenada, p. 10 (1886).

Occurs in winter in the West Indies; records from Porto Rico, Cuba, Jamaica, Grenada, and the Bahamas.

Genus **Nomonyx** Ridgw.

Nomonyx Ridgway, Pr. U. S. Nat. Mus. II, p. 15, March 27, 1880.

Nomonyx dominicus (Linn.). ✓

Anas dominica Linn. Syst. Nat. I, p. 201 (1766).—Sundev. Oefv. K. Vet. Akad. For. 1869, p. 603 (Porto Rico).

Anas spinosa? D'Orb. in La Sagra's Hist. Nat. Cuba, Ois. p. 297 (1840)?

Erismatura dominica A. & E. Newton, Ibis, 1859, p. 367 (St. Croix) (?).—Gundl. Repert. Fisico-Nat. Cuba, I, p. 391 (1866); *ib.* J. f. O. 1874, p. 314 (Porto Rico); *ib.* 1875, p. 314 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 408 (1878) (Porto Rico).

Dendrocygnus spinosa Brewer, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).

Nomonyx dominicus Cory, List Bds. W. I. p. 31 (1885).

Sp. Char. *Male:*—Top of head brownish black; a stripe of brown through the eye, and a parallel stripe of the same color below, separated by a narrow stripe of tawny; a narrow tawny superciliary stripe; throat tawny brown, the feathers marked with chestnut, heaviest on the lower part; underparts dull white, marked with yellowish brown; feathers of the back having the centres black, and heavily edged with chestnut; quills and tail dark brown; secondaries white, tipped with brown, forming a large white patch on the wing. In some plumages the male is described as having the entire head black.

The female differs from the male in lacking the chestnut marking on the upper parts, which is replaced by pale brown, bill dark brown, almost black.

Length, 12.00; wing, 5.30; tail 3.10; tarsus, 90; bill, 1.30.

Habitat. Antilles.

Genus **Lophodytes** Reich.

Lophodytes Reichenbach, Syst. Av. p. IX, 1852.

Lophodytes cucullatus (Linn.). ✓

Mergus cucullatus Linn. Syst. Nat. I, 10th ed. p. 129 (1758); *ib.* 12th ed. p. 207 (1766).—Brewer, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—Gundl. J. f. O. 1862, p. 93 (Cuba).—Cory, List Bds. W. I. p. 31 (1885).

Lophodytes cucullatus Gundl. Repert. Fisico-Nat. Cuba, I, p. 391 (1866); *ib.* J. f. O. 1875, p. 385 (Cuba).

Accidental in Cuba.

Family FREGATIDÆ.

Genus **Fregata** Cuv.

Fregata Cuvier, Lec. d'Anat. Comp. I, tabl. II, 1799-1800.

Fregata aquila (Linn.). ✓

Pelecanus aquilus Linn. Syst. Nat. I, 10th ed. p. 133 (1758); *ib.* 12th ed. p. 216 (1766).

Fregata aquila D'Orb. in La Sagra's Hist. Nat. Cuba, Ois. p. 309 (1840).—Brewer, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—Lawr. Pr. U. S. Nat. Mus. I, p. 65 (1878) (Dominica) (?) *ib.* p. 195 St. Vincent); *ib.* p. 236 (Antigua); *ib.* p. 240 (Barbuda); *ib.* p. 274 (Grenada); *ib.* p. 359 (Martinique).—Allen, Bull. Nutt. Orn. Club, V, p. 169 (1880) (Santa Lucia).—A. & E. Newton, Handb. Jamaica, p. 112 (1881).—Cory, List Bds. W. I. p. 31 (1885).

Fregata aquilus Gosse, Bds. Jam. p. 422 (1847).

Tachypetes aquilus A. & E. Newton, Ibis, 1859, p. 369 (St. Croix).—Bryant, Pr. Bost. Soc. Nat. Hist. VII, p. 126 (1859) (Bahamas).—Gundl. Repert. Fisico-Nat. Cuba, I, p. 396 (1866); *ib.* J. f. O. 1874, p. 315 (Porto Rico); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 421 (1878) (Porto Rico).—Bryant, Pr. Bost. Soc. Nat. Hist. XI, p. 98 (1867) (San Domingo).—Cory, Bds. Bahama I. p, 200 (1880); *ib.* Bull. Nutt. Orn. Club, VI, p. 155 (1881) (Haiti); *ib.* Bds. Haiti & San Domingo, p. 173 (1885).

Tachypetes aquila Wells, List Bds. Grenada, p. 10 (1886).

Abundant in the Bahamas and throughout the Antilles

Family PELECANIDÆ.

Genus **Pelecanus** Linn.

Pelecanus Linnæus, Syst. Nat. 1735; *ib.* 10th ed. I, p. 132, 1758.

Pelecanus fuscus Linn.

Pelecanus fuscus Linn. Syst. Nat. I, p. 215 (1766).—D'Orb. in La Sagra's Hist. Nat. Cuba, Ois. p. 300 (1840).—Gosse, Bds. Jam. p. 409 (1847).—A. & E. Newton, Ibis, 1859, p. 368 (St. Croix).—Bryant, Pr. Bost. Soc. Nat. Hist. VII, p. 122 (1859) (Bahamas); *ib.* Brewer, p. 308 (1860) (Cuba).—Gundl. Repert. Fisico-Nat. Cuba, I, p. 394 (1866).—Lawr. Ann. Lyc. N. Y. VIII, p. 101 (1867) (Sombrero).—Sundev. Oefv. K. Vet. Akad. For. 1869, p. 603 (Porto Rico).—Lawr. Pr. U. S. Nat. Mus. I, p. 66 (1878) (Dominica); *ib.* p. 196 (St. Vincent); *ib.* p. 236 (Antigua); *ib.* p. 240 (Barbuda); *ib.* p. 274 (Grenada); *ib.* p. 359 (Martinique).—Gundl. Anal. Soc. Esp. Hist. Nat. VII, p. 416 (1878) (Porto Rico).—Cory, Bds. Bahama I. p. 196 (1880).—A. & E. Newton, Handb. Jamaica, p. 112 (1881).—Cory, Bull. Nutt. Orn. Club, VI, p. 155 (1881) (Haiti); *ib.* Bds. Haiti & San Domingo, p. 172 (1885); *ib.* List Bds. W. I. p. 32 (1885).—Wells, List Bds. Grenada, p. 10 (1886).

The Brown Pelican is common in the Bahama Islands, the Greater Antilles, and in many of the Lesser Antilles.

Family PHALACROCORACIDÆ.

Genus **Phalacrocorax** Briss.

Phalacrocorax Brisson, Orn. VI, p. 511, 1760.

Phalacrocorax dilophus floridanus (Aud.).✓

Phalacrocorax floridanus Aud. Orn. Biog. III, p. 387 (1835).—Lemb. Aves Cuba, p. 119 (1850)—Brewer, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—Gundl. J. f. O. 1862, p. 95 (Cuba).

Graculus floridanus Bryant, Pr. Bost. Soc. Nat. Hist. VII, p. 128 (1859) (Bahamas).—Gundl. Repert. Fisico-Nat. Cuba, I, p. 394 (1866); *ib.* J. f. O. 1875, p. 400 (Cuba).

Graculus dilophus var. *floridanus* Cory, Bds. Bahama I. p. 198 (1880).

Phalacrocorax dilophus floridanus Ridgw. Nom. N. A. Bds. No. 643 *a* (1881).—Cory, List. Bds. W. I. p. 32 (1885).

Accidental in the Bahamas and Cuba.

Phalacrocorax mexicanus (Brandt).

Carbo mexicanus Brandt, Bull. Sc. Ac. Imp. St. Pet. III, p. 56 (1837).
Phalacrocorax resplendens Lemb. Aves Cuba, p. 119 (1850).—Gundl. J. f. O. 1862, p. 95 (Cuba).
Phalacrocorax townsendi Lemb. Aves Cuba, p. 120 (1850).—Gundl. J. f. O. 1862, p. 95 (Cuba).
Phalacrocorax mexicanus Brewer, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—Cory, List Bds. W. I. p. 32 (1885).
Graculus mexicanus Gundl. Repert. Fisico-Nat. Cuba, I, p. 395 (1866); *ib.* J. f. O. 1875, p. 401 (Cuba).

Recorded from Cuba.

Family ANHINGIDÆ.

Genus Anhinga Briss.

Anhinga Briss. Orn. VI, p. 476, 1760.

Anhinga anhinga (Linn.).

Plotus anhinga Linn. Syst. Nat. I. p. 218 (1766).—Lemb. Aves Cuba, p. 120 (1850).—Brewer, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—Gundl. J. f. O. 1862, p. 96 (Cuba); *ib.* Repert. Fisico-Nat. Cuba, I, p. 395 (1866); *ib.* J. f. O. 1875, p. 405 (Cuba).—Cory, List Bds. W. I. p. 32 (1885).

This species is stated to be common in many parts of Cuba.

Family SULIDÆ.

Genus Sula Briss.

Sula Brisson, Orn. VI, p. 495, 1760.

Sula cyanops (Sundev.).

Dysporus cyanops Sundev. Phys. Tidskr. Lund. pt. 5 (1837).
Sula dactylatra? Bryant, Pr. Bost. Soc. Nat. Hist. VII, p. 125 (1859) (Bahamas); XI, p. 97 (1867) (San Domingo).—Cory, Bds. Bahama I. p. 194 (1880).
Sula cyanops Cory, Bds. Haiti & San Domingo, p. 170 (1885); *ib.* List Bds. W. I. p. 32 (1885).

Sp. Char.—Large. General color white; remiges and greater wing-coverts dark brown; middle rectrices hoary white, tipped with brown; rest of tail dark brown, white at the base; feet reddish? gular sac bluish.
Wing, 16.00; tail, 7.70; bill, 3.90; tarsus, 1.85.

Habitat. West Indies, Bahamas, breeding (*Bryant*).

Sula sula (Linn.). ✓

Pelecanus sula Linn. Syst. Nat. ed. 12, I, p. 218 (1766).

Pelecanus leucogastra Bodd. Tabl. Pl. Enl. p. 57 (1783).

Sula fusca D'Orb. in La Sagra's Hist. Nat. Cuba, Ois. p. 306 (1840).—Gosse, Bds. Jam. p. 417 (1847).—Sallé, P. Z. S. 1857, p. 237 (San Domingo).—Brewer, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—Albrecht, J. f. O. 1862, p. 207 (Jamaica); *ib.* Gundl. p. 95 (Cuba).—Bryant, Pr. Bost. Soc. Nat. Hist. XI, p. 97 (1867) (San Domingo).

Sula fiber Gosse, Bds. Jam. p. 417 (1847).—Bryant, Pr. Bost. Soc. Nat. Hist. VII, p. 123 (1859) (Bahamas). — Albrecht, J. f. O. 1862, p. 207 (Jamaica). —Lawr. Ann. Lyc. N. Y. VIII, p. 101 (1867) (Sombrero); Pr. U. S. Nat. Mus. I, p. 196 (1878) (St. Vincent); *ib.* p. 274 (Grenada).—Allen, Bull. Nutt. Orn. Club, V, p. 169 (1880) (Santa Lucia).—Cory, Bds. Bahama I. p. 191 (1880).—Wells, List. Bds. Grenada, p. 11 (1886).

Dysporus sula A. & E. Newton, Ibis, 1859, p. 369 (St. Croix).

Dysporus fiber Gundl. Repert. Fisico-Nat. Cuba, I, p. 395 (1866); *ib.* J. f. O. 1874, p. 314 (Porto Rico); *ib.* 1875, p. 402 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 418 (1878) (Porto Rico).

Dysporus leucogaster Sundev. Oefv. K. Vet. Akad. For. 1869, p. 591 (St. Bartholomew).

Sula leucogastra A. & E. Newton, Handb. Jamaica, p. 112 (1881).—Cory, Bds. Haiti & San Domingo, p. 171 (1885); *ib.* List Bds. W. I. p. 32 (1885).

Sula sula Ridgw. Pr. U. S. Nat. Mus. VIII, p. 356 (1885).

Sp. Char. *Adult:*—Head, throat, upper part of breast, and entire upper plumage dark olive brown; underparts white; gular sac pale yellow; upper mandible greenish; feet pale yellowish green; iris yellowish.
Length, 27.00; wing, 15.50; tail, 8.00; tarsus, 1.60; bill, 4.00.

Habitat. Antilles.

Sula piscator (Linn.). ✓

Pelecanus piscator Linn. Syst. Nat. I, 10th ed. p. 134 (1758); *ib.* 12th ed. p. 217 (1766).

Sula parvu? Gosse, Bds. Jam. p. 219 (1847).—Wells, List Bds. Grenada, p. 11 (1886).

Sula piscator GOSSE, Bds. Jam. p. 418 (1847).—A. & E. NEWTON, Handb Jamaica, p. 112 (1881).—CORY, List Bds. W. I. p. 32 (1885).—WELLS, List Bds. Grenada, p. 11 (1886).

Dysporus hernandezi GUNDL. J. f. O. 1878, p. 298 (Cuba).

Dysporus piscator GUNDL. J. f. O. 1881, p. 401 (Cuba).

SP. CHAR. *Adult Male:*—General plumage white, showing a buff tinge on the head and neck; shafts of the tail-feathers pale yellow; remiges and most of the wing-coverts slaty gray, showing an ash tinge; feet reddish.

Young in first plumage:—General plumage grayish brown above; dull gray beneath, sometimes whitish; plumage very variable.

Length, 28.00; wing, 14.50; tail, 8.00; tarsus, 2.10; bill, 3.30.

HABITAT. West Indies.

FAMILY PHAËTHONTIDÆ.

GENUS **Phaëthon** LINN.

Phaëthon LINNÆUS, Syst. Nat. 1756; *ib.* I, p. 134, 1758.

Phaëthon flavirostris BRANDT. ✓

Phaëthon flavirostris BRANDT, Bull. Soc. Acad. St. Petersb. II, p. 349 (1837).—LAWR. Pr. U. S. Nat. Mus. I, p. 65 (1878) (Dominica).—*ib.* p. 240 (Barbuda); *ib.* p. 359 (Martinique).—CORY, Bds. Bahama I. p. 204 (1880); *ib.* Bds. Haiti & San Domingo, p. 175 (1885): *ib.* List Bds. W. I. p. 33 (1885).

Phaëton flavirostris? BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 128 (1859) (Bahamas).—*ib.* BREWER, p. 308 (1860) (Cuba).—GUNDL. Repert. Fisico-Nat. Cuba, I. p. 395 (1866).—LAWR. Ann. Lyc. N. Y. VIII, p. 103 (1867) (Sombrero).—GUNDL. J. f. O. 1874, p. 314 (Porto Rico); *ib.* 1875, p. 403 (Cuba); *ib.* 1878, p. 163 (Porto Rico); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 419 (1878) Porto Rico).

Adult Male:—Bill pale orange yellow; general plumage white, sometimes slightly rosy-tinted; most of primaries showing much black; a streak passing through the eye; some of the wing-coverts and shafts of tail-feathers black; tail extended into two very long feathers which are reddened; tarsus bluish; iris black; webs and toes black.

Length, including tail-feathers, 31.50; wing, 11.00; tail, 21.00; tarsus, .90; bill, 2.00.

HABITAT. Bahamas and Antilles.

Phaëthon æthereus Linn. ✓

Phaëthon æthereus Linn. Syst. Nat. I, 10th ed. p. 134 (1758); *ib.* 12th ed. p. 219 (1766).—Gosse, Bds. Jam. p. 430 (1847).—Sundev. Oefv. K. Vet. Akad. För. 1869, p. 590 (St. Bartholomew); *ib.* p. 603 (Porto Rico).—Lawr. Pr. U. S. Nat. Mus. I, p. 195 (1878) (St. Vincent); *ib.* p. 274 (Grenada); *ib.* p. 460 (Guadeloupe).—A. & E. Newton, Handb. Jamaica, p. 112 (1881).—Cory, List Bds. W. I. p. 33 (1885); *ib.* Ibis, 1886, p. 474 (La Desirade).—Wells, List Bds. Grenada, p. 11 (1886).

Phaëton æthereus D'Orb. in La Sagra's Hist. Nat. Cuba, Ois, p. 312 (1840).—Gundl. J. f. O. 1862, p. 96 (Cuba); *ib.* Albrecht, p. 207 (Jamaica).

Sp. Char.—Bill red; General plumage white; a black crescent in front of the eye; a stripe extending from the eye to the occiput; outer webs of outer primaries, and most of the primary coverts, black; rest of upper surface irregularly barred with dull black; flanks striped; elongated central tail-feathers white, basal portion of the shafts black; tarsus yellowish orange? this color reaching to the first joint of the toes, including the web between the inner and hind toes; rest of feet black.

Length, 31.00; wing, 12.00; bill, 2.45.

Recorded from Cuba, Jamaica, Porto Rico, St. Vincent, Grenada, Gaudeloupe, St. Bartholomew, and La Desirade.

Family RYNCHOPIDÆ.

Genus **Rynchops** Linn.

Rynchops Linnæus, Syst. Nat. I, 10th ed. p. 228, 1758; *ib.* 12th ed. p. 228, 1776.

✓ **Rynchops nigra** Linn.

Rynchops nigra Linn. Syst. Nat. I, 10th ed. p. 228 (1758); *ib.* 12th ed. p. 228 (1766).—A. & E. Newton, Ibis, 1859, p. 371 (St. Croix)?—Cory, List Bds. W. I. p. 33 (1885).

Rhyncops nigra Gundl. Repert. Fisico-Nat. Cuba, I, p. 393 (1866); *ib.* J. f. O. 1875, p. 395 (Cuba).

Accidental in Cuba and St. Croix.

Family LARIDÆ.

Genus **Larus** Linn.

Larus Linnæus, Syst. Nat. I. p. 136, 1758.

Larus atricilla Linn.

Larus atricilla Linn. Syst. Nat. I, 10th ed. p. 136 (1758); *ib.* 12th ed. p. 225 (1766).—D'Orb. in La Sagra's Hist. Nat. Cuba, Ois. p. 315 (1840).—Bryant, Pr. Bost. Soc. Nat. Hist. VII, p. 134 (1859) (Bahamas); *ib.* Brewer, p. 308 (1860) (Cuba).—Sundev. Oefv. K. Vet. Akad. For. 1869, p. 590 (St. Bartholomew); *ib.* p. 603 (Porto Rico).—Lawr. Pr. U. S. Nat. Mus. I, p. 238 (1878) (Antigua); *ib.* p. 142 (Barbuda); *ib.* p. 277 (Grenada); *ib.* p. 462 (Gaudeloupe).—Cory, Bds. Bahama I. p. 208 (1880).—A. & E. Newton, Handb. Jamaica, p. 117 (1881).—Cory, Bds. Haiti & San Domingo, p. 177 (1885); *ib.* List Bds. W. I. p. 33 (1885).—Wells, List Bds. Grenada, p. 11 (1886).

Xema atricilla Gosse, Bds. Jam. p. 437 (1847).—Albrecht, J. f. O. 1862, p. 207 (Jamaica).

Chrœcocephalus atricilla A. & E. Newton, Ibis, 1859 p. 371 (St. Croix).

Chroicocephalus atricilla Gundl. Repert. Fisico-Nat. Cuba, I, p. 391 (1866); *ib.* J. f. O. 1874, p. 314 (Porto Rico); *ib.* 1875, p. 385 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 408 (1878) (Porto Rico).

Common throughout the West Indies.

Larus argentatus Brünn.

Larus argentatus Brünn. Orn. Bor. p. 44 (1764).—Brewer, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—Albrecht, J. f. O. 1861, p. 215 (Cuba).—Cory, List Bds. W. I. p. 33 (1885).

Larus marinus Lemb. Aves Cuba, p. 122 (1850).—Brewer, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—Gundl. J. f. O. 1862, p. 95 (Cuba).

Larus zonorhynchus Gundl. J. f. O. 1862, p. 94 (?) (Cuba).

Larus smithsonianus Gundl. Repert. Fisico-Nat. Cuba, I, p. 391 (1866); *ib.* J. f. O. 1875, p. 387 (Cuba).

Cuba and Bahamas in winter.

Larus franklinii Swains.

Larus franklinii Swains. & Rich. F. B. A. II, p. 424, pl. 71 (1831).

Larus franklini Sundev. Oefv. K. Vet. Akad. For. 1869, p. 590 (St. Bartholomew).—Cory, List Bds. W. I. p. 33 (1885).

Recorded from St. Bartholomew.

Larus philadelphia is claimed to have been *seen* at Long Island, Bahamas. There is no actual record of the capture of this species in the West Indies.

GENUS **Gelochelidon** BREHM.

Gelochelidon BREHM, Naturg. Vög. Deutschl. 1831, p. 774.

Gelochelidon nilotica (HASSELQ.).

Sterna nilotica HASSELQ. Reise nach Pal. Deutschl. Ausg. 1762, p. 325.
Sterna anglica MONT. Orn. Dict. Suppl. 1813. — D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 321 (1840).—MOORE, Pr. Bost. Soc. Nat. Hist. XIX, p. 141 (1877) (Bahamas).—CORY, Bds. Bahama I. p. 209 (1880); *ib.* List Bds. W. I. p. 33 (1885).
Gelochelidon aranea BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—GUNDL. J. f. O. 1862, p. 94 (Cuba).
Gelochelidon anglica GUNDL. Repert. Fisico-Nat. Cuba, I, p. 392 (1866); *ib.* J. f. O. 1875, p. 388 (Cuba).
Gelochelidon nilotica STEJN. Auk, I, p. 366 (1884).

Bahamas and Antilles.

GENUS **Sterna** LINN.

Sterna LINNÆUS, Syst. Nat. I, ed. 10, p. 137 (1758); *ib.* ed. 12, p. 227 (1766).

Sterna maxima BODD.

Sterna maxima BODD. Tabl. Pl. Enl. p. 58 (1783). — SAUNDERS, P. Z. S. 1876, p. 655 (W. I.).—LAWR. Pr. U. S. Nat. Mus. I, p. 198 (1878) (St. Vincent); *ib.* p. 488 (Antigua); *ib.* p. 242 (Barbuda); *ib.* p. 277 (Grenada); *ib.* p. 462 (Gaudeloupe).—A. & E. NEWTON, Handb. Jamaica, p. 117 (1881).—CORY, Bds. Haiti & San Domingo, p. 178 (1885); *ib.* List. Bds. W. I. p. 33 (1885).
Sterna cayennensis D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 319 (1840).
Thalasseus cayanus GOSSE, Bds. Jam. p. 431 (1847).
Thalasseus regius A. & E. NEWTON, Ibis, 1859, p. 371 (St. Croix).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 392 (1866).—LAWR. Ann. Lyc. N. Y. VIII, p. 103 (1867) (Sombrero).—GUNDL. J. f. O. 1874, p. 314 (Porto Rico); *ib.* 1875, p. 388 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 410 (1878) (Porto Rico).
Sterna regia BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 134 (1859) (Bahamas); *ib.* XI, p. 98 (1867) (San Domingo).—SCL. P. Z. S. 1861,

p. 82 (Jamaica).—Cory, Bds. Bahama I. p. 210 (1880).—Wells, List Bds. Grenada, p. 11 (1886).

Gelochelidon cayennensis Brewer, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).

Bahamas and Antilles.

Sterna sandvicensis acuflavida.

Sterna cantiaca Gmel. Syst. Nat. I, p. 606 (1788)?—Cory, Bds. Bahama I, p. 211 (1880); *ib.* List Bds. W. I. p. 33 (1885).

Sterna acuflavida Cabot, Pr. Bost. Soc. Nat. Hist. II, p. 257 (1847).—Bryant, *ib.* VII, p. 134 (1859) (Bahamas).

Thalasseus acuflavidus Brewer, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—Gundl. Repert. Fisico-Nat. Cuba, I, p. 392 (1866); *ib.* J. f. O. 1874, p. 314 (Porto Rico); *ib.* 1875, p. 390 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 411 (1878) (Porto Rico).

Thalasseus acuflavida Gundl. J. f. O. 1862, p. 94 (Cuba).

Sterna sandvicensis acuflavida Ridgw. Water Bds. N. Am. II, p. 288 (1884).

Bahamas and Antilles.

Sterna hirundo Linn.

Sterna hirundo Linn. Syst. Nat. I, ed. 10, p. 137 (1758); *ib.* ed. 12, p. 227 (1766).—Cory, Bds. Bahama I. p. 211 (1880); *ib.* List Bds. W. I. p. 33 (1885).

Sterna wilsoni Bryant, Pr. Bost. Soc. Nat. Hist. VII, p. 134 (1859) (Bahamas.)

Accidental in the Bahama Islands.

Sterna anosthætus Scop.

Sterna anosthætus Scop. Del. Faun. et Flor. Ins. II, No. 72 (1786).

Haliplana discolor Coues, Ibis, 1864, p. 392.—Lawr. Ann. Lyc. N. Y. VIII, p. 104 (1867) (Sombrero).

Sterna anosthæta Cory, Bds. Bahama I. p. 215 (1880); *ib.* List Bds. W. I. p. 33 (1885).—Wells, List Bds. Grenada, p. 11 (1886).

Haliplana anæstheta Gundl. J. f. O. 1881, p. 400 (Cuba).

Sp. Char. — Bill black; cap black; forehead white, *extending like two horns over each eye and reaching behind them;* upper back grayish, shading into the white on the sides of the neck; upper plumage grayish brown; underparts white; primaries dark brown, the first and second showing a clear band of white on the inner webs, not reaching within an inch of the tips, and gradually fading on the others; upper tail-coverts slaty gray; outer tail-feathers ***almost entirely white***, showing a tinge of brownish near the tip; legs and feet black; iris brown.

Length, 14.25; wing, 10.00; tail, 6.25; tarsus, .70; bill, 1.50.

Common in the Bahama Islands; breeds. Cuba, Sombrero; probably occurs throughout the West Indies.

✓ Sterna fuliginosa GMEL.

Sterna fuliginosa GMEL. Syst. Nat. I, p. 605 (1788). — D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 319 (1840). — BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 134 (1859) (Bahamas); *ib.* XI, p. 98 (1867) (San Domingo). — SUNDEV. Oefv. K. Vet. Akad. For. 1869, p. 589 (St. Bartholomew); *ib.* p. 603 (Porto Rico).—LAWR. Pr. U. S. Nat. Mus. I, p. 68 (1878) (Dominica); *ib.* p. 277 (Grenada); *ib.* p. 462 (Guadeloupe). — CORY, Bds. Bahama I. p. 214 (1880). — A. & E. NEWTON, Handb. Jamaica, p. 117 (1881). — CORY, Bds. Haiti & San Domingo, p. 181 (1885); *ib.* List Bds. W. I. p. 33 (1885).—WELLS, List Bds. Grenada, p. 11 (1886).

Hydrochelidon fuliginosa GOSSE, Bds. Jam. p. 433 (1847). — BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—ALBRECHT, J. f. O. 1862, p. 207 (Jamaica).

Onychoprion fuliginosus A. & E. NEWTON, Ibis, 1859, p. 371 (St. Croix)? —CASSIN, Pr. Acad. Nat. Sci. Phila, 1860, p. 379 (St. Thomas).

Haliplana fuliginosa GUNDL. Repert. Fisico-Nat. Cuba, I, p. 393 (1866); *ib.* J. f. O. 1875, p. 393 (Cuba); *ib.* 1878, p. 163 (Porto Rico); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 414 (1878) (Porto Rico).

Bahamas and Antilles.

✓ Sterna dougalli MONT.

Sterna dougalli MONT. Orn. Dict. Suppl. (1813). — SUNDEV. Oefv. K. Vet. Akad. For. 1869, p. 589 (St. Bartholomew). —LAWR. Pr. U. S. Nat. Mus. I, p. 488 (1878) (Dominica); *ib.* p. 238 (Antigua) *ib.* p. 277 (Grenada); *ib.* p. 360 (Martinique); *ib.* p. 462 (Guadeloupe). —CORY, List Bds. W. I. p. 33 (1885).—WELLS, List Bds. Grenada, p. 11 (1886).

Sterna paradisea GUNDL. Repert. Fisico-Nat. Cuba, I, p. 392 (1866); *ib.* J. f. O. 1875, p. 391 (Cuba); *ib.* 1878, p. 163 (Porto Rico); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 411 (1878) (Porto Rico).—CORY, Bds. Bahama I. p. 212 (1880).

Common throughout the West Indies.

Sterna antillarum (LESS.).

Sternula antillarum LESS. Descr. Mam. et Ois. p. 256 (1847).

Sterna argentea GOSSE, Bds. Jam. p. 437 (2847). — ALBRECHT, J. f. O 1862, p. 207 (Jamaica).

Sterna minuta LEMB. Aves Cuba, p. 123 (1850).

Sternula frenata BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).—GUNDL. J. f. O. 1862, p. 93 (Cuba).

Sterna antillarum GUNDL. Repert. Fisico-Nat. Cuba, I, p. 393 (1866).—BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 98 (1867) (San Domingo). —GUNDL. J. f. O. 1874, p. 314 (Porto Rico); *ib.* 1875, p. 391 (Cuba); *ib.* 1878, p. 163 (Porto Rico); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 412 (1878) (Porto Rico). — SAUNDERS, P. Z. S. 1876, p. 661 (Antilles).—LAWR. Pr. U. S. Nat. Mus. I, p. 68 (1878) (Dominica). — A. & E. NEWTON, Handb. Jamaica, p. 117 (1881). — CORY, Bds. Haiti & San Domingo, p. 179 (1885); *ib.* List Bds. W. I. p. 33 (1885).

Sterna minuta americana SUNDEV. Oefv. K. Vet. Akad. For. 1869, p. 589 (St. Bartholomew).

Sterna superciliaris CORY, Bds. Bahama I. p. 213 (1880).

Bahamas and Antilles.

GENUS **Hydrochelidon** BOIE.

Hydrochelidon BOIE, Isis, 1822, p. 563.

Hydrochelidon nigra surinamensis (GMEL.).

Rallus lariformis LINN. Syst. Nat. I, 10th ed. p. 153 (1758)?

Sterna surinamensis GMEL. Syst. Nat. I, 2nd part, p. 604 (1788).

Hydrochelidon nigra GOSSE, Bds. Jam. p. 437 (1847).—ALBRECHT, J. f. O. 1862, p. 207 (Jamaica).—SAUNDERS, P. Z. S. 1876, p. 642 (W. I.).—A. & E. NEWTON, Handb. Jamaica, p. 117 (1881).

Sterna nigra LEMB. Aves Cuba, p. 124 (1850).

Hydrochelidon surinam BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).

Hydrochelidon plumbea GUNDL. J. f. O. 1862, p. 93 (Cuba)

Hydrochelidon fissipes GUNDL. Repert. Fisico-Nat. Cuba, I, p. 393 (1866); *ib.* J. f. O. 1875, p. 393 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 413 (1878) (Porto Rico).

Hydrochelidon lariformis COUES, Bds. N. W. p. 704 (1874).—CORY, List Bds. W. I. p. 34 (1885).

Hydrochelidon nigra surinamensis STEJN. Pr. U. S. Nat. Mus. V, p. 40 (1882).

Antilles in winter.

GENUS **Anous** LEACH.

Anous LEACH, Shaw's Gen. Zool. XIII, p. 139, 1826.

Anous stolidus (LINN.).

Sterna stolida LINN. Syst. Nat. I, 10th ed. p. 137 (1758); *ib.* 12th ed. p. 227 (1766).—D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 317 (1840).

Megalopterus stolidus GOSSE, Bds. Jam. p. 434 (1847).

Anous stolidus BRYANT, Pr. Bost. Soc. Nat. Hist. VII, p. 134 (1859) (Bahamas); *ib.* BREWER, p. 308 (1860) (Cuba).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 393 (1866).—LAWR. Ann. Lyc. N. Y. VIII, p. 105 (1867) (Sombrero).—SUNDEV. Oefv. K. Vet. Akad. For. 1869, p. 590 (St. Bartholomew).—GUNDL. J. f. O. 1875, p. 395 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 415 (1878) (Porto Rico).—LAWR. Pr. U. S. Nat. Mus. I, p. 488 (1878) (Dominica); *ib.* p. 277 (Grenada).—CORY, Bds. Bahama I. p. 216 (1880).—GRISDALE, Ibis, 1882, p. 486 (Montserrat).—CORY, Bds. Haiti & San Domingo, p. 182 (1885); *ib.* List Bds. W. I. p. 34 (1885).—WELLS, List Bds. Grenada, p. 12 (1886).

Sterna (*Anous*) *stolida* BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 97 (1867) (San Domingo).

Abundant in the Bahamas and Antilles.

FAMILY PROCELLARIIDÆ.

GENUS **Oceanites** KEYS. & BLAS.

Oceanites KEYSERLING & BLASIUS, Wirb Eur. I, p. xciii, 1840.

Oceanites oceanicus (KUHL).

Procellaria oceanica KUHL, Beitr. Zool. 1820, Mon. Proc. p. 136, pl. 10, fig. 1.

Thalassidroma wilsonii BRYANT, Pr. Bost. Soc. Nat. Hist., VII, p. 131 (1859) (Bahamas).

Oceanites wilsoni GUNDL. Repert. Fisico-Nat. Cuba, I, p. 394 (1866); *ib.* J. f. O. 1875, p. 396 (Cuba).

Oceanites oceanica CORY, Bds. Bahama I. p. 218 (1880).

Oceanites oceanicus CORY, List Bds. W. I. p. 34 (1886).—WELLS, List Bds. Grenada, p. 12 (1886).

Bahamas and Antilles.

Genus **Æstrelata** Bp.

Æstrelata Bonaparte, Consp. Avium, II, p. 188, 1856.

Æstrelata jamaicensis (Bancr.).

Procellaria jamaicensis Bancr. Zool. Journ. V, p. 81 (1828).
"*Œstrelata caribæa* Auct."
Blue Mountain Duck Gosse, Bds. Jam. p. 437 (1847).
Pterodroma caribbæa Carte, P. Z. S. 1866, p. 93, pl. X.
Petrodroma caribbæus Gray, Handl. Bds. III, p. 107 (1871).
Œstrelata jamaicensis A. & E. Newton, Handb. Jamaica, p. 117 (1881).–Bd. Bwr. & Ridgw. Hist. N. Am. W. Bds. II, p. 394 (1884).—Cory. List. Bds. W. I. p. 34 (1885).

Sp. Char. *Male:*—General plumage dark sooty brown, paling slightly on the chin, forehead and upper part of the back, joining the neck: rump brownish black; upper tail-coverts dull white; quills and tail brownish black; bill and feet black.

The sexes are similar.

Length, 14.00; wing, 11.00; tail, 4.75; tarsus, 1.40; bill, 1.25 to 1.50.

Habitat. Jamaica.

Æstrelata hasitata (Kuhl).

Procellaria hasitata "Kuhl, Mon. Proc. Beitr. Zool. p. 142, No. 11 (1820)."
? *Procellaria diabolica* L'Herminier, MSS.—Lawr. Pr. U. S. Nat. Mus. 1879, p. 450 (Gaudeloupe).
Œstrelata hesitata Bd. Bwr. & Ridgw. Hist. N. Am. W. Bds. II, pp. 394-395 (1884) (Haiti).—Cory, List Bds. W. I. p. 34 (1885).

It is probable that this bird is occasionally to be found in the West Indies. One specimen, claimed to have been taken near Haiti, is now in the British Museum.

Genus **Puffinus** Briss.

Puffinus Brisson, Orn. VI, p. 131, 1760.

Puffinus major Faber.

Puffinus major Faber, Prodr. Isl. Orn. p. 56 (1822).—Cory, Bds. Bahama I. p. 218 (1880).—*ib.* List Bds. W. I. p. 34 (1885).

Recorded from the Bahama Islands.

Puffinus auduboni Finsch.

Puffinus obscurus Bryant. Pr. Bost. Soc. Nat. Hist. VII, p. 132 (1859) (Bahamas).—Scl. P. Z. S. 1879. p. 765 (Montserrat).—Cory, Bds.

Bahama I. p. 219 (1880); *ib.* Bds. Haiti & San Domingo, p. 184 (1885).

Procellaria obscura BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 98 (1867) (San Domingo).

Puffinus auduboni FINSCH, P. Z. S. 1872, p. 111 (Bahamas).—GUNDL. J. f. O. 1881, p. 400 (Cuba).—CORY, List Bds. W. I. p. 34 (1885).

SP. CHAR.—Above glossy brown, shading into grayish upon the sides of the breast; below white; crissum brown and white; tail brown, the feathers faintly tipped with ashy; bill lead-color.

Length, 12.50; wing, 8.00; tail, 4.25; tarsus, 1.60; bill, 1.30.

HABITAT. Bahamas and Greater Antilles.

(*To be concluded.*)

DESCRIPTIONS OF SUPPOSED NEW BIRDS FROM LOWER CALIFORNIA, SONORA, AND CHIHUAHUA, MEXICO, AND THE BAHAMAS.

BY WILLIAM BREWSTER.

DURING the past year I have received a large number of birds from Mexico, representing three distinct collections, one made by Mr. M. Abbott Frazar in Lower California between January 24 and December 31, 1887; another by Mr. J. C. Cahoon in the eastern central part of Sonora between January 31 and June 18, 1887; and the third by Mr. R. R. McLeod in the extreme western portions of Chihuahua during the years 1883, 1884 and 1885. The last, although comprising only about two hundred skins, has proved particularly rich in new and little known birds.

Full lists of the species taken or observed by each of these collectors, with such field notes as they have placed in my hands, will be prepared and published as soon as possible, the present paper being restricted to the supposed new species or subspecies. In determining these I have received invaluable aid from Mr. Ridgway who has been at much personal trouble in examining and reporting on the numerous specimens which I have submitted to him, and through whose kind offices I have been able to compare nearly all of the new birds with series, often including the types, of their nearest allies from the collection of the National Museum.

In my descriptions the names of colors have been determined, in nearly all cases, by careful comparison with the plates in Mr. Ridgway's 'Nomenclature of Colors.' My measurements are in English inches and hundredths. I measure the wing with dividers from the bend to the tip of the longest primary, thus taking the chord, not the curve, of the wing. I measure the tail from the extremity of the oil glands to the end of the longest rectrix.

Ardea virescens frazari,* new subspecies.—FRAZAR'S GREEN HERON.

SUBSP. CHAR.—Similar to *A. virescens* but rather larger, the general coloring darker, duller, and more uniform; the neck more purplish, its sides as well as the forehead strongly glaucous; the light striping on the throat and fore neck more restricted.

♂ *ad.* (No. 14134, collection of W. Brewster, La Paz, Lower California, Feb. 7, 1887; M. Abbott Frazar). Top of head and occipital crest dark bottle-green, the forehead with a slight hoary or plumbeous cast; a narrow stripe of creamy buff, spotted rather thickly and coarsely with dull black, extending down the middle of the throat and fore neck; remainder of head and neck dark purplish maroon, tinged—most strongly on sides of neck—with hoary or glaucous; rest of upper parts nearly uniform dull green, varied, however, by a plumbeous tone on the primaries, a purplish brown tinge on the dorsal plumes, and a narrow rusty edging on both webs of most of the upper wing-coverts; edge of wing rusty white; lining of wing, under wing-coverts, and the lower parts generally, plain slate-gray. Wing, 7.04; tarsus, 2.22; culmen from feathers, 2.52.

A second specimen (♂ ad. La Paz, Feb. 14, 1887) is precisely similar in coloring to the bird just described. It measures, wing, 7.37; tarsus, 2.28; culmen from feathers, 2.50.

Habitat. Near La Paz, Lower California.

Although the points of difference between this bird and true *A. virescens* are not easily expressed, they are nevertheless apparent on the most casual comparison, or, indeed, without any comparison whatever. The deeper, more purplish maroon of the neck with its decided glaucous tinge, is perhaps the best character of the new form. None of the specimens in the National Museum from the west coast of Mexico show any approach to *frazari*, all being apparently true *virescens*.

Ardea bahamensis, new species.—BAHAMA GREEN HERON.

SP. CHAR.—Smaller than *A. virescens;* the general coloring much paler, browner, or yellower, and more uniform; the forehead strongly tinged with brownish; the light edging of the secondaries broader; the dorsal plumes and rump only slightly, sometimes not at all, greenish.

♂ *ad.* (No. 108,819, collection Nat. Mus., Watling's Island, Bahamas,

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*To M. Abbott Frazar of Watertown, Mass.

March 8, 1886). Top of head dark, dull green strongly tinged with brownish on the forehead; throat, jugulum and fore neck creamy white with dusky spotting on the jugulum; remainder of head and neck light chestnut, approaching cinnamon in places; fore part and sides of back rusty cinnamon; rump and most of upper tail-coverts drab; dorsal plumes dull greenish, the central ones glaucous with a tinge of lilac; wings and tail dull green, the wing-coverts edged broadly on both webs, the secondaries more narrowly on the outer webs only, with rusty or whitish; under wing-coverts, breast, abdomen, crissum and sides of body light yellowish drab.

♀ *ad.* (No. 108,814, collection Nat. Mus., Rum Cay, Bahamas, March 2, 1886). Similar to the ♂ just described, but with the dorsal plumes duller, browner, and more strongly tinged with lilac.

A third specimen without sex mark (No. 108,645, collection Nat. Mus., Abaco, Bahamas, April 3, 1886), differs from both of those just mentioned in having the sides of head and neck as well as the fore back yellowish rusty or cinnamon rusty with scarcely a tinge of chestnut; the dorsal plumes brownish glaucous rather strongly glossed with lilac and without apparent greenish; and the wing-coverts very broadly edged with brownish white.

Measurements, extremes of six specimens: Wing, 6.15–6.50; tarsus, 1.75–2.08; bill (culmen from feathers), 2.09–2.54.

Habitat. Bahamas (Rum Cay, Watling's Island, Abaco).

All of the eight specimens of this Heron which I have examined are distinguishable at a glance from *A. virescens* by their decidedly paler, browner and more uniform coloring. The difference is hardly of a kind or degree that would warrant the separation of the new form as a full species, were it not for its island habitat which, of course, renders intergradation with *A. virescens* improbable. The latter, curiously enough, seems to be generally distributed throughout the remainder of the West Indies, for, in the rather large West Indian series in Mr. Cory's collection and that of the National Museum, I do not find any birds that differ appreciably from *virescens*, excepting possibly in size, the West Indian skins averaging considerably smaller than those from the United States at large, although they are not apparently smaller than those from Florida.

Hæmatopus frazari,* new species.—FRAZAR'S OYSTER CATCHER.

SP. CHAR.—Differing from *H. palliatus* in having a stouter, more depressed bill, little or no white on the eyelids, the back, scapulars, and wing-coverts richer and deeper brown, the primaries and tail-feathers darker, the upper tail-coverts more or less varied with brown and white, the lateral under tail-coverts marked with brown, the bend of the wing and greater under primary coverts mottled with black and white; from *H. galapagensis* in the rather shorter bill and distinctly brown (instead of sooty black) back, scapulars, and wing-coverts, dark markings on the under tail-coverts, and greater amount of white on the under primary coverts; from both *palliatus* and *galapagensis* in the broad zone of mottled black and white feathers extending across the breast.

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* To M. Abbott Frazar of Watertown, Mass.

♂ *ad.* (No. 14135, collection of W. Brewster, Carmen Island, Gulf of California, March 6, 1887; M. Abbott Frazar). Entire head and neck black with a greenish gloss most pronounced on the jugulum and hind neck; back, scapulars, lesser and middle wing-coverts rich seal-brown; wing quills, and tail-feathers brownish black, very much darker than the back, the concealed bases of the secondaries and tail-feathers pure white; shorter upper tail-coverts concolor with the back, longer ones white with broad bars and spots of brown on their tips and inner webs; under tail-coverts white with large, irregular bars and spots of brown on their outer webs; black of throat and jugulum extending rather farther down over the breast than in either *H. palliatus* or *H. galapagensis*, and separated from the immaculate white of the lower breast, abdomen, anal region and sides by a broad zone of mottled black and white feathers; inner surface of primaries and greater under wing-coverts plain drab; middle under wing-coverts and contiguous exposed edge of wing mottled with dark brown and white, the brown prevailing; most of the remaining under wing-coverts and all the axillary feathers immaculate white; a trace of whitish at the bases of the feathers of the lower eyelids. Bill dull carmine; legs and feet flesh-color.*

Measurements, extremes of three specimens, all males: wing, 9.75-10.27; tail, 3.90-4.26; tarsus, 2.18-2.30; bill, length from nostril, 2.35-2.57; from feathers, 2.99-3.05; depth at angle, .49-.53.

Habitat. Pacific and Gulf Coasts of Lower California.

Although in several respects intermediate between *H. galapagensis* and *H. palliatus*, this Oyster Catcher seems to be specifically distinct from either. Mr. Frazar found it common and evidently preparing to breed on the sandy islands and shores of the Gulf to the northward of La Paz, but, mistaking it for *H. palliatus*, secured only three specimens. These present the characters above detailed, with almost perfect uniformity. A fourth example in the collection of the National Museum (Coronado Island, May 17, 1881, L. Belding) from the Pacific coast of the peninsula has a rather deeper bill and less white mottling on the breast. The latter difference, however, may be apparent rather than real, for the head is bent over on the back and the skin otherwise so distorted that it cannot be satisfactorily examined. It is a curious fact that in the National Museum collection true *H. palliatus* is represented from Isabella Island (west coast of Mexico), Tehuantepec, Peru, and Chili.

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* In the dried specimen.

Columba fasciata vioscæ,* new subspecies.—VIOSCA'S PIGEON.

SP. CHAR.—Similar to *C. fasciata* but with the tail band wanting or only faintly indicated, the general coloring lighter and more uniform, the vinaceous tints, especially on the head, neck and breast, much fainter and more or less replaced by bluish ash.

♂ *ad.* (No. 14138, collection of W. Brewster, La Laguna, Lower California, May 30, 1887; M. Abbott Frazar). Above bluish ash, deepest and purest on wing-coverts and rump, palest (nearly plain drab) on terminal half of tail, tinged slightly with olive brown on back and scapulars, and very faintly with vinaceous on the crown; a narrow half collar of white across upper hind neck, the remainder of the hind neck dull, metallic, bronzy green; primaries dark slaty brown; primaries, secondaries, and wing-coverts edged narrowly with white; basal half of tail uniform with rump, the terminal half drab (whitish on under side of the feathers), the two colors not separated by black as in *C. fasciata*, but merely shading rather abruptly into one another; under tail-coverts, crissum, and anal region white; abdomen whitish; flanks, sides, and under wing-coverts nearly concolor with the rump but a little lighter; remainder of underparts pinkish vinaceous with a strong tinge of glaucous; feet and basal two thirds of bill dull yellow, the terminal third of the bill black. Wing, 8.69; tail, 5.36; tarsus, 1.15; bill from feathers, .66.

♀ *ad.* (No. 14139, collection of W. Brewster, La Laguna, Lower California, May 31, 1887; M. Abbott Frazar). Smaller than the ♂, and slightly duller, the top of head browner. Wing, 8.00; tail, 5.47; tarsus, 1.07; bill from feathers, .69.

Habitat. Lower California.

The characters above proposed are shown by the large series (over one hundred specimens) before me to be sufficiently well marked and constant to entitle the Lower California bird to subspecific separation. Its general coloring is much paler and more uniform than that of true *fasciata*, the crown being faintly instead of strongly tinged with vinaceous, the underparts glaucous, instead of purplish, vinaceous, the back much ashier and less brownish. As a rule the tail-band is either wholly lacking or only faintly indicated, but a very few specimens have it distinctly marked. In *fasciata*, as far as I have observed, it is always present. Thirteen specimens of *fasciata* before me from various parts of the United States and the mainland of Mexico show only a trifling variation in coloring. The lightest bird among them is darker than my darkest example of *C. f. vioscæ.*

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* To Mr. Viosca, United States Consul at La Paz, Lower California.

At Mr. Frazar's request I have named this bird after Mr. Viosca, the U. S. Consul at La Paz, who has been most kind and helpful in furthering the success of Mr. Frazar's explorations.

Megascops aspersus,* new species.—Spotted Screech Owl.

Sp. Char.—Sides of head conspicuously fringed with black bristles, longest on auriculars and superciliary ruffs; tarsi densely feathered on all sides to the toes, the latter sparsely feathered above; throat and sides of neck pale rusty chestnut; remainder of plumage coarsely spotted and barred almost everywhere with dull black.

♀ *ad.* (No. 14125, collection of W. Brewster, El Carmen, Chihuahua, Mexico, May 6, 1884; R. R. McLeod). Sides of head from the lores to the auriculars both above and below the eye, but not including the 'ear-tufts,' with a fringe of fine, black, hair-like bristles formed by the elongation of the shafts and denuded terminal barbs of the feathers, these bristles longest on the auriculars and superciliary ruffs where they project half an inch or more. General coloring above dark brownish drab, below grayish white, the feathers of the top of head, hind neck, back, scapulars, wing coverts, and most of the underparts coarsely streaked longitudinally, and broadly barred transversely, with dull black; throat, tibiæ, and a narrow space on the side of the neck, pale rusty chestnut barred with dark brown or dull black; anal region and lower half of tarsi immaculate; under tail-coverts with a few small spots of brown; forehead, lores, and anterior half of the auriculars finely barred with dark brown; under wing-coverts pinkish buff, a few of the feathers with fine dark streaks; rump nearly immaculate; tail crossed by about six narrow, rusty white bars fairly well defined on all the feathers excepting the central pair where they are only faintly indicated; scapulars with large, irregularly ovate, brownish white spots confined chiefly to the outer webs of the feathers; primaries and secondaries pale clove-brown, the primaries coarsely spotted or 'notched' on their outer webs with grayish, more or less rusty, white, these spots darker and duller on the inner three feathers; outer webs of secondaries similarly, but more obscurely spotted; inner webs of both primaries and secondaries with large buffy white spots separated from the shafts of all the feathers by a space of plain clove-brown, and on the primaries conspicuous only on the basal portion of each quill, although faintly indicated on its terminal half also. Length,† 7.50; extent,† 16.25; wing, 5.66; tail, 2.89; tarsus, 1.17; middle toe, .67; culmen from nostril, .40; greatest depth of bill, .41; length of longest feathers of ear tufts, 1.00.

Young in first plumage (♀ No. 14126, collection W. Brewster, El Carmen, Aug. 22, 1884; R. R. McLeod). General coloring paler than in the adult, the ground color above pinkish drab, that of the underparts muddy white, the coarse black streaks and bars wanting, but most of the plumage barred finely and rather faintly with reddish brown; under wing and tail-coverts immaculate; rump, wings, and tail precisely as in the adult, and sides of head with similar but less long and abundant bristles.

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* Aspersus = spotted.

† Collector's measurements from fresh specimen.

Habitat. Province of Chihuahua, Mexico.

This species is probably related rather closely to *Scops barbarus* Scl., with which it agrees (judging by descriptions, for I have seen no specimens of *barbarus*) in general style of coloration as well as in the possession of the curious fringe of bristles on the sides of the head, but from which it differs in the rusty chestnut of the throat and neck, the more numerous and conspicuous blackish spots and bars, and the more extended feathering on the legs and feet.

Megascops vinaceus,* new species.—Chihuahua Screech Owl.

Sp. Char.—Most nearly like *M. cooperi*, but much smaller and lighter colored.

♀, *ad.* (No. 14124, collection of W. Brewster, Durasno, Chihuahua, Mexico, Dec. 2, 1884; R. R. McLeod). Above pinkish, in places rusty drab, all the feathers except the outer primaries vermiculated with dark brown, those of the forehead, crown, 'ear-tufts,' back, scapulars, and wing-coverts with rather narrow shaft streaks of blackish or clove-brown. Primaries, secondaries and tail-feathers barred with light wood-brown, the bars on the tail narrow and distinct excepting on a short space near the tips of the feathers where they are broken and confused, those of the the wings broad, distinct on the outer webs of the primaries where they form a conspicuous light notching, but on the inner webs of these feathers, as well as on both webs of the secondaries, only dimly outlined; cheeks, throat and entire underparts ashy white tinged with pinkish buff, most of the feathers with fine, wavy transverse bars of dull brown, those of the breast, abdomen, and under tail-coverts with narrow, sharply outlined mesial streaks of dark clove-brown; sides of neck and middle of breast with coarser, broader spots of the same color; tibiæ and tarsi tinged with rusty chestnut, and flecked with burnt umber. Under wing-coverts creamy buff with sparse flecks of brown. Wing, 5.85; tarsus, 1.25; tail, 3.04; middle toe, .70; bill, length from nostril, .47; depth at nostril, .43; longest feathers of ear-tufts, .96.

Habitat. Province of Chihuahua, Mexico.

Otophanes,† new genus.

Gen. Char. Bill long, narrow, slender, with tubular nostrils opening forward and outward, not upward; the gape with long, stiff, naked bristles curving downward and inward, meeting and overlapping under the chin; tarsus naked, about equal to middle toe; tail long (only about .80 inch shorter than wing), and slightly rounded, (graduation about .25 inch); wing comparatively short and rounded, the second and third quills equal and longest, the fourth slightly shorter, the first and fifth decidedly shorter than the fourth and equal. Plumage peculiarly soft and velvety; eyes bordered in front and above by semi-circlets of radiating feathers, the tips directed upward and outward forming distinct superciliary ruffs or shields which extend from the gape along the sides of the crown to the occiput where they terminate in tufts of elongated feathers, erectile in life and precisely similar in form and position to the 'ear tufts' of *Megascops*. The superciliary shields, also, are curiously Owl-like. The superciliary shields, as well as the feathers along the maxillary line and many of the auriculars, are tipped with a fringe of delicate, black, hair-like bristles of varying length, the longest extending about .30 inch beyond the ends of the feathers. Examined under a glass these bristles prove to be elongated shafts and terminal barbs lacking the barbules.

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* *Vinaceus* = vinaceous, of a pinkish color.

† οὖς (ὠτός) *ear;* φαίνω *show.*

This remarkable genus is too strongly characterized to require comparison with either of its probably nearest allies, *Antrostomus* and *Phalænoptilus*. The type is:

Otophanes mcleodii,* new species.—EARED WHIPPOORWILL.

♀ *ad.* (No. 14123, collection of W. Brewster, Sierra Madre of Chihuahua, Mexico, Dec. 6, 1884; R. R. McLeod). Jugulum and tips of the tail-feathers (excepting the central pair) white; throat and cheeks light raw umber; remainder of the plumage reddish brown, varying in shade from light vandyke to burnt umber; the feathers almost everywhere (excepting on the white areas) delicately vermiculated with dull brown or grayish; a broad tipping on the central feathers of the crown, the shoulders, wings, tail, a band across the breast, another across the abdomen, and some large, more or less regularly heart-shaped spots on the scapulars, burnt umber, deepest on the crown, shoulders and scapular spots, several of the latter approaching seal-brown; some of the feathers of the abdomen and wing-coverts spotted with brownish white; primaries and secondaries tipped (the former to some extent edged, also) with light vandyke brown and crossed with numerous, rather narrow, dull black bands; all the tail-feathers excepting the central pair tipped with white, more or less tinged with rusty; this white tipping broadest on the second and third pair (counting the feathers inward), slightly narrower on the first pair, narrowest and strongly rusty on the fourth pair; its width varying from .25 to .45 of an inch. The second and third pairs of feathers have the white bounded basally by brownish black, immaculate on the inner webs for a space about .75 of an inch deep, but on the outer webs variegated somewhat with rusty brown; below these dark spaces the feathers just mentioned are banded narrowly across both webs to their bases with dark brown; the first (outer) and fourth (next to inner) pairs of feathers are crossed by about ten narrow, well defined brownish black bands distributed at regular intervals from the white tips to their bases;

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*To R. R. McLeod of Houlton, Maine.

the central pair of feathers are without trace of white; they are barred faintly and confusedly with dull reddish brown. Wing, 4.82; tail, 3.97; tarsus, .65; bill, length of culmen from feathers, .20; from nostril, .21; width at nostril, .15; longest feathers of ear-tufts, .80.

Habitat. Province of Chihuahua, Mexico.

The type of this curious new genus and species was the only specimen obtained by Mr. McLeod during his stay in Mexico. It was brought to him alive by a Mexican boy and kept in a cage for nearly two weeks. During this time it refused all food excepting such as was literally forced down its throat. It moved its ear-tufts precisely as an Owl does, erecting them when approached or startled by any sudden noise, allowing them to droop back on the crown when it thought itself alone and safe. The Mexicans called it by a name which means "road-stopper," but this, I believe, is a designation given by them to other members of the family Caprimulgidæ without distinction of species. Unfortunately the precise place of capture is not recorded on the label, but judging by the analogy furnished by other labels in the collection it must have been either near Durasno or El Carmen, probably the former.

Empidonax cineritius,* new species.—ST. LUCAS FLYCATCHER.

SP. CHAR.—Most nearly like *E. difficilis* but with the general coloring much duller, the upperparts with scarcely a tinge of greenish, no decided yellow beneath, excepting on jugulum and abdomen; wing-bands brownish white.

♂ *ad.* (No. 14136, collection of W. Brewster, La Laguna, Lower California, May 12, 1887; M. Abbot Frazar). Sides of head and neck and entire upperparts plain hair-brown, darkest on wings and tail, with the faintest possible tinge of olive on crown and nape; wing-bands and outer edges of secondaries brownish white; jugulum, abdomen, and crissum pale, slightly brownish, straw-yellow; breast ecru-drab; throat a duller, slightly browner, shade of the same; lores and a poorly defined orbital ring brownish white; bend of wing and under wing-coverts straw-yellow. Wing, 2.64; tail, 2.40; tarsus, .68; bill from nostril, .36. Sexes similar. (Type of ♀ No. 14137, collection of W. Brewster, La Laguna, Lower California, April 27, 1887; M. Abbott Frazar).

That the Yellow-bellied Flycatcher of the extreme southern portion of the peninsula of Lower California is distinct from its representative *E. difficilis* of the mainland of western North America, is shown conclusively by a series of some twenty-five spring and summer specimens collected by Mr. Frazar. Among these the differences just pointed out are represented with great uniformity. In almost any other group of birds they would be perhaps hardly sufficient to warrant more than a subspecific separation, but with our North American *Empidonaces* the characters which distinguish forms proved by their habits, eggs, etc. to be perfectly distinct species, are often so slight as to be of little diagnostic value in the absence of series of determined specimens for comparison. Accordingly as I have no proof that the Flycatcher described above actually intergrades with its near ally *E. difficilis*, it seems wisest to claim for it the rank of a full species. Its characters will be found, I think, more constant and easily available than those which distinguish *E. minimus* from *E. trailli* or, to use an illustration more to the point, *E. difficilis* from *E. flaviventris*. The true *difficilis*, by the way, occurs in Lower California in winter.

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* *Cineritius* = ashy.

Icterus wagleri castaneopectus,* new subspecies.—CHESTNUT-BREASTED ORIOLE.

SUBSP. CHAR.—Similar to *I. wagleri* but rather larger, the breast with a broad band of chestnut.

♂ *ad* (No. 14131, collection of W. Brewster, collector's number 638, Oposura, Sonora, Mexico, April 13, 1887; J. C. Cahoon). Head, neck, chest, back, scapulars, wings (excepting lesser and middle upper coverts and all the under coverts) and tail (with its upper and under coverts) deep, rather glossy, black; remainder of plumage, including the lesser and middle upper and all the under wing-coverts, rich brownish orange; black of throat and chest separated from orange of remaining underparts by a conspicuous band of chestnut, nearly half an inch wide on the centre of the breast, narrowing rapidly towards its extremities which are about opposite the shoulders. Length,† 9.00; extent,† 12.75; wing, 4.15; tail, 4.17; tarsus, 1.00; bill from nostril, .58. "Bill black, pale horn-color on sides of lower mandible at base."

Habitat. Mountain regions of Sonora and Chihuahua, Mexico.

I have before me eight examples of this Oriole, six taken in Chihuahua by Mr. McLeod, two in Sonora by Mr. Cahoon. Of these, seven present the characters above mentioned with almost perfect uniformity. The eighth has only a trace of the chestnut pectoral band, but its absence is probably due to the fact that the bird is either young or very immature, as is shown by the dull, faded appearance of the black portions of the plumage, by the paleness of the yellow of the underparts, and still more conclusively by the light edging on some of the tail-feathers. Among the fourteen specimens of *wagleri* examined, there is not one which has any approach to a chestnut band, although a few show traces of chestnut along the line of demarcation between the black and yellow of the underparts, thus indicating the probability of intergradation at points where the two forms meet. Typical *wagleri* is represented in the National Museum collection by specimens from Tepic, Guadalaxara, Guanajuato and Coahuilla. Hence, its range extends nearly half around the habitat of *castaneopectus*. The latter is probably confined to the upper slopes and table lands of the Sierra Madre of Chihuahua and Sonora, where it is perhaps resident, for Mr. McLeod found it in Chihuahua late in December. Both forms may be confidently expected to occur as stragglers north of the Mexican boundary, *wagleri* along the Rio Grande, *castaneopectus* in the mountains of Southern Arizona.

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* *Castaneus* = chestnut; *pectus* = breast.

† Collector's measurement of fresh bird.

Aimophila mcleodii,* new species.—McLEOD'S SPARROW.

SP. CHAR.—Larger than *A. rufescens* but with the bill smaller (both shorter and slenderer); colors duller and more uniform; crown chestnut without trace of a median stripe; wings and tail nearly concolor with back.

♂ *ad.* (No214127, collection of W. Brewster, El Carmen, Chihuahua, Mexico, June 3, 1885; R. R. McLeod). Top of head dull chestnut, perfectly uniform on the crown, but with a few lighter colored feathers on the forehead near the base of the culmen; remainder of upperparts olive brown, tinged slightly with pale chestnut on the nape, interscapulars and wings, a few of the interscapulars with clove-brown shaft-streaks; wing-coverts and tertials tipped with drab; sides of head and neck plain hair-brown with a short, poorly defined post-ocular stripe of dull chestnut; entire lower parts light wood-brown, lightest—approaching brownish white—on the jugulum and abdomen, deepest—clayey—on the throat, flanks, and under tail-coverts; a distinct, broad, but short, blackish stripe on each side of the throat, bordered above by a maxillary stripe of the same color as the throat; lores dusky, bordered above by a brownish white stripe which starts at the nostril, and just above the eye is lost in the darker (hair-brown) color of the sides of the head; bend of wing and under wing-coverts whitish. Wing, 3.00; tail, 3.40; tarsus, .90; culmen from nostril, .42; depth of bill at nostril, .33.

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* To R. R. McLeod of Houlton, Maine.

♀ *ad.* (No.214128, collection of W. Brewster, El Carmen, Nov. 10, 1884; R. R. McLeod). Much smaller than the male, the stripes on sides of throat duller and less conspicuous, the occiput and nape spotted with clove-brown. Wing, 2.55; tail, 2.75; tarsus, .88; culmen from nostril, .40; depth of bill at nostril, 32.

Aimophila cahooni,* new species.—Cahoon's Sparrow.

Sp. Char.—Of about the size and proportions of *A. mcleodii* but decidedly paler and grayer, the general coloring not unlike that of *A. sumichrasti;* the central feathers on top of head, especially on the forehead and occiput, tipped with ashy, which tends to form a median crown stripe; throat and central portion of abdomen nearly pure white, in contrast with the remainder of the underparts.

♂ *ad.* (No.214129, collection of W. Brewster, collector's number 1074, near Oposura, Sonora, Mexico, June 2, 1887; J. C. Cahoon). Top of head pale chestnut, the feathers of the middle portion with light tips and edges; sides of head and neck, breast, and sides of body, smoke-gray, deepening on the flanks and under tail-coverts to broccoli-brown; throat and abdomen soiled white, the throat with a short, broad blackish stripe on each side, bordered above by a whitish maxillary stripe; lores and auriculars dusky gray; eyelids and superciliary stripe anterior to the eye, nearly pure white; a short post-ocular stripe of dull chestnut; wing-coverts, nape, back, and rump grayish olive, the interscapulars, wing-coverts and feathers of the hind neck with reddish brown centres, some of them with clove-brown shaft-streaks also; wings and tail brownish drab, tinged with cinnamon on the outer webs of the secondaries and on both webs of the tail-feathers, the latter with the faintest possible indication of dark bars; wing-coverts and tertials edged and tipped with pale drab; bill bluish horn-color; legs and feet light brown. Length,† 7.50; extent,† 9.45; wing, 3.15; tail, 3.36; culmen from nostril, .40; depth of bill at nostril, .30.

♀ *ad.* (No.214130, collection of W. Brewster, collector's number 1047, near Oposura, May 31, 1887; J. C. Cahoon). Smaller than the male and rather grayer; the dark stripes on sides of throat duller and less well defined; feathers of a wide space over the centre of the crown extending from the hind neck nearly to the forehead, broadly tipped with smoke-gray, this light space bordered on each side from the crown to the lower hind neck by a band of dark brown or blackish spots, the two bands nearly meeting at their posterior extremities. Length,† 7.25; extent,† 9.25; wing, 2.79; tail, 2.98; tarsus, .97; culmen from nostril, 43; depth of bill at nostril, .40.

Habitat. Mountains near Oposura, Sonora, Mexico.

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* To J. C. Cahoon of Taunton, Mass.

† Collector's measurements of fresh specimen.

Mr. Cahoon collected fourteen specimens of this fine new *Aimophila*. Among these the chief variation is in respect to the extent of the ashy tipping on the top of the head and the black spotting on the head and back. Some birds have the greater part of the crown ashy, the chestnut being confined to two stripes, one on each side. Others show only a faint trace of light color on the crown, and this confined to the tips of a few of the central feathers, but nearly all have a distinct, if short, medial light stripe invading the forehead from the base of the bill. In still others there is more or less blackish on the forehead with a well defined stripe of black or blackish spots extending from the forehead along each side of the crown to beyond the occiput. Abundant and conspicuous black streaking on the interscapulars is sometimes associated with the presence of these black head-stripes, sometimes found without them. In a very few birds the chestnut post-ocular stripe is also spotted with black.

The three forms of *Aimophila* just considered form a graduated series of which *A. rufescens* is the smallest and most deeply colored, *A. cahooni* the palest and grayest, as well as, probably, the largest, *A. mcleodii* being in many respects intermediate between the two, although apparently most nearly related to *A. cahooni*. The latter seems to be colored somewhat like *A. sumichrasti* (of which I have seen only descriptions) but it is very much larger. The range of variation exhibited by my series of *A. cahooni* renders it not improbable that all four of the forms just mentioned will be found to intergrade at points where their respective habitats meet, but the characters which distinguish them are too well marked and the material available too scanty to warrant any present action based on such a hypothesis. I have accordingly presented both the new forms as full species.

Troglodytes cahooni,* new species.—CAHOON'S WREN.

SP. CHAR.—Most nearly allied to *T. brunneicollis* Scl., but rather smaller, the tail decidedly shorter, the general coloring, both above and beneath, very much paler and grayer, the bars on the flanks and abdomen faint or nearly obsolete.

♂ *ad*. (No. 14132, collection of W. Brewster, collector's number 1045, near Oposura, Sonora, Mexico, May 13, 1887; J. C. Cahoon). Above grayish brown, the rump, tail, and wings slightly reddish but not decidedly rusty;

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* To J. C. Cahoon of Taunton, Mass.

the back barred faintly, the wings and tail more distinctly, with darker brown; abdomen, crissum, anal region, and under tail-coverts soiled white, faintly flecked with brown on the flanks and under tail-coverts: remainder of underparts pale wood-brown; sides of head and neck flecked with grayish brown on a wood-brown ground; a poorly defined, inconspicuous, light superciliary stripe. Upper mandible dark*; lower mandible and feet pale flesh-color.* Length,* 4.75; extent,* 6.40; wing, 1.92; tail, 1.40; tarsus, .66; bill from nostril, .37. Sexes alike; type of ♀ No. 14133, collection of W. Brewster, same date, place, and collector as the ♂.

Habitat. Mountains near Oposura, Sonora, Mexico.

In general color and markings this species closely resembles *T. a. parkmani*, from which it is easily distinguishable, however, by its very much shorter tail and more tawny coloring beneath. It is evidently most nearly allied to *T. brunneicollis.* Among the eight specimens collected by Mr. Cahoon there is some variation with respect to the color of the underparts, but the deepest colored bird is much paler beneath than any specimen that I have seen of *T. brunneicollis.* One example is peculiar in having the bars on the tail confused and indistinct. Another has the superciliary stripe fairly well defined.

FIFTH MEETING OF THE AMERICAN ORNITHOLOGISTS' UNION.

The fifth meeting of the American Ornithologists' Union was held at the Museum of the Boston Society of Natural History, Boston, Mass., Oct. 11-13, 1887, the President in the chair. The meeting was attended by seventeen Active Members and twelve Associate Members. The report of the Secretary stated that the membership of the Union consisted of 46 Active Members, 25 Foreign Members, 70 Corresponding Members, and 143 Associate Members. The Union had lost by death during the year one of its founders and Councillors, Prof. Spencer F. Baird, —a loss irreparable to the Union, and one deeply felt throughout the scientific world. The date of the meeting for this year had been fixed with special reference to Professor Baird's convenience, as he had given assurance that if he were alive, he would attend the meeting if held in Boston the second week in October. Hence the sense of loss was forcibly impressed upon all. His death occurred, as is well known,* at Wood's Holl, Mass., August 19, 1887.

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* From collector's notes based on the fresh specimen.

In the death of Dr. J. M. Wheaton,† at Columbus, Ohio, Jan. 28, 1887, the Union also lost another original member, and an ornithologist of prominence, and one held in great esteem by his fellow-members. Dr. Julius von Haast, Director of the Canterbury Museum, Christchurch, New Zealand, a Corresponding Member of the Union, died at Bonn, August 15, 1887. Dr. Haast was especially known for his admirable researches respecting the remarkable extinct birds of New Zealand.

Mr. Samuel Wells Willard, of West DePere, Wis., an Associate Member, died at Chatanooga, Tenn., May 24, 1887, at the age of 28. He was a young man of unusual promise, and will be long remembered for his excellent work on the migration and distribution of the birds of Wisconsin.

The Treasurer's report showed an indebtedness of about five hundred dollars, resulting mainly from the publication of the 'Code and Check-List.' 'The Auk,' during the past year, had proved self-sustaining.

The report from the Council included, as usual, nominations for membership, and also a draft of a new Constitution and By-Laws, and a report of its action in relation to the matter of incorporation, both the latter being subjects specially referred to the Council at the last meeting. Only one candidate was nominated for Active Membership, namely, Dr. F. W. Langdon of Cincinnati, Ohio. Owing to pending radical changes in the manner of selecting candidates for Active Membership, it was deemed undesirable by the Council to present other nominations at this meeting. Dr. Langdon's case presented peculiar claims, he having been previously elected at the first meeting of the Union, and prevented by unfortunate circumstances from availing himself of the privilege of membership. Twenty-eight nominations were reported for Associate Membership.

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* See Auk, Vol. IV, p. 358.

† See Ibid., p. 174.

The Constitution and By-Laws presented had been drawn up by a Committee of the Council, appointed for the purpose last year,* and had been carefully revised by the Council, and were now recommended to the Union for adoption.

The matter of incorporation had been considered by the Council, and the President had been instructed to appoint a committee, of which he was to be chairman, to secure the incorporation of the Union under the laws of the State of New York.

Following the report from the Council came the election of members, resulting in the election of all of the candidates recommended by the Council. The new Constitution and By-Laws were then considered, and, with slight modifications, adopted as presented.†

An election of officers was then held, under the provisions of the new Constitution and By-Laws, which require seven Councillors instead of five. This, with the vacancy in the Council resulting from Professor Baird's death, required the election of three new members to the Council. The officers of the previous year were all re-elected, but Mr. Cory declined to serve another year as Treasurer, and Mr. William Dutcher was elected to the vacancy. The additional members of the Council are Messrs. Charles B. Cory, D. G. Elliot, and Leonhard Stejneger.

On suggestion of the President a committee (consisting of Dr. George Bird Grinnell, William Dutcher, and George B. Sennett) was appointed to co-operate with a committee of the New York Academy of Sciences in the work of soliciting subscriptions for the erection of a monument to John James Audubon in Trinity Church Cemetery, New York City. The tomb of America's great bird painter and ornithologist has sadly fallen into decay, and is very obscurely marked; it therefore seems especially fitting that the American Ornithologists' Union should take active measures to aid the movement already started to erect a proper monument to this distinguished pioneer in American ornithology.

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* See Auk, Vol. IV, p. 57.

† As the new 'Constitution and By-Laws'—adopted finally under the title 'By-Laws and Rules,'—are published, together with the Membership Lists, with the present number of 'The Auk,' no special synopsis of them is required in the present connection.

Under the call for reports of Committees, the chairman of the Committee on the Distribution and Migration of North American Birds (Dr. C. Hart Merriam) made a verbal report, detailing the progress of the work, which is now, as is well known, carried on under the auspices of the United States Department of Agriculture, and largely by means of appropriations made by Congress. The work of gathering data was continued much as heretofore, through means of circulars and schedules, resulting in voluminous returns, which were being elaborated as rapidly as the extent and nature of the work permitted. Economic questions necessarily required much attention, and the gathering of food statistics entered largely into the work. Two large 'Bulletins' were passing through the press, one being a very elaborate report on the English Sparrow, and the other Messrs. Cooke and Widmann's report on the migration and distribution of birds in the Mississippi Valley. The report of the Committee was received as a report of progress, and the Committee was continued.

The Chairman of the Committee on Bird Protection (Mr. George B. Sennett) reported that the Committee was doing all in its power to disseminate information in relation to the subject, the chief obstacle to its work being the ignorance of the public on all matters relating to the utility of birds and the measures necessary for their protection. This ignorance was especially dense among farmers, who were intensely prejudiced against Hawks and Owls, and indifferent to the services rendered by these and many other useful species they were accustomed to regard as enemies and pests. The information the Committee had gathered respecting the food of Birds of Prey showed conclusively that, with two or three exceptions, these species were far more beneficial than harmful, many of them subsisting chiefly upon field mice and other farm pests. In this connection quite an extended account was given of the very excellent work of the Audubon Society. The report was accepted as a report of progress and the Committee continued.

The Committee on Avian Anatomy reported through its Chairman, Dr. Elliott Coues. The report was mainly eulogistic of the labors of his indefatigable colleague, Dr. Shufeldt, and an appeal to the Union for its aid in behalf of securing Dr. Shufeldt's transfer from a frontier post to one of the larger cities near the Atlantic seaboard, within reach of the libraries and museums so indispensable to him in his work.

This ended the first day's session. At the second day's session, under the call for miscellaneous business, the President referred to the Treasurer's statement of the indebtedness of the Union and of the great desirability of providing for its immediate payment. He called attention to the provision made in the By-Laws adopted the previous day for life membership, and stated that he thought he saw in this a speedy way of raising the needed funds. A life membership yielding $100, five of them would suffice for present needs. Two members had already subscribed for life memberships, and another had been taken conditionally upon five being secured. At this point, Colonel N. S. Goss arose and asked to be recorded for a life membership, and was immediately followed by Dr. J. C. Merrill, who stated that he would also become a life member. This completed the five required to cancel the present indebtedness, the other life members being William Brewster, Charles B. Cory, and Dr. Coues. The President congratulated the Union on this gratifying turn in its financial affairs, which evidently gave great satisfaction to all present.

The remainder of the second day's session was devoted to the reading of scientific papers, this feature of the meeting being appropriately opened by an address on the life and scientific services of our late leader, Professor Spencer F. Baird, prepared by Mr. Robert Ridgway and read, in his absence, by the Secretary.* Other papers which followed are: 'Notes on *Gymnostinops montezumæ*,' by N. S. Goss; 'Cormorant Fishing in Japan,' by P. L. Jouey; 'The Fishing-habits of the White Pelican (*Pelecanus erythrorhynchus*)', by Colonel Goss; 'Occurrence of the Evening Grosbeak in Iowa,' by C. R. Keyes (read by C. F. Batchelder); 'A List of the birds of Fulton County, Ky.,' by L. O. Pindar (read by the Secretary); 'A Bird Wave,' by Phillip Cox (read by M. Chamberlain); 'The Nocturnal Migration of Birds,' by Frank M. Chapman. The Secretary presented some observations made by Mr. William Lloyd, in the arid region of Western Texas, on the distance from water at which certain birds are found. Several of the papers elicited remarks from various members, and Mr. Chapman's paper was discussed at length by Messrs. Brewster, Chapman, Cory, Jeffries, Merriam, and others. At the third day's session a long and very interesting paper on 'The Birds of South Greenland', by A. Hagerup, was read by Mr. Chamberlain.

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*The address is given in full as the first article of the present number of 'The Auk.'

Resolutions of thanks were tendered to the Boston Society of Natural History for the use of its lecture-room as a place of meeting and for many other courtesies extended to the Union; to the Nuttall Ornithological Club for its hospitalities to the members of the A. O. U; and to Senator Warner Miller for his successful efforts in Congress in behalf of the Division of Economic Ornithology of the Department of Agriculture.

The selection of the place for holding the next meeting, made during the second day, elicited a lively discussion, New York City and Washington being the rival points, the good-natured struggle being finally decided in favor of the latter, the Union voting to hold its next meeting in Washington, on the second Tuesday in November, 1888.

Mr. George L. Toppan, representing the Ridgway Ornithological Club of Chicago, made a few remarks in response to a call from the President, in which he expressed the hope that the Ridgway Club would have the pleasure of welcoming the A. O. U. to Chicago at a not very distant day.

The Fifth Meeting of the American Ornithologists' Union adjourned at 12.30 P. M. of the third day to give members opportunity to make an excursion to Cambridge in the afternoon, for the purpose of examining the ornithological collection of the Museum of Comparative Zoölogy, and the private collection of Mr. William Brewster.

The meeting, all things considered, was one of the most satisfactory thus far held, and also one of the most important. The A. O. U. enters upon the fifth year of its existence free of debt, with its quarterly journal on an apparently sound financial basis, with an elaborate and well-considered system of 'By-laws and Rules' for its government, and with the prospect of soon having legal status as a corporate body. The social features of the Boston meeting, thanks to the foresight of the Nuttall Ornithological Club, will be long and pleasantly remembered.

RECENT LITERATURE.

Coues's 'Key to North American Birds,' New Edition.* —The 'Third Edition' of the 'Key' is a reprint of the second edition, from the same plates, with the addition of a new preface and an 'Appendix' of 30 pages (pp. 865-895) of new matter. A sketch of the general character of the second edition having already been given in 'The Auk' (Vol. I, No. 3, July, 1884, pp. 283, 284), it is necessary to notice in the present connection only the additions to the text now presented. The second edition was a great improvement upon the first, published in 1872, which was not only entirely rewritten but greatly augmented and made practically a new work, there remaining of the old little more than the general framework and plan. This plan was at the time unique — an attempt to apply in a manual of ornithology the analytical key system of botanical manuals. The much fuller definitions of the species and subspecies, with the added terse biographical notes, and better and more numerous illustrations, rendered the second edition much more satisfactory than was the first, which had, however, proved a most successful venture, both for the author and his readers. In the preface to the third edition the author expresses himself as so well satisfied with the second that it seemed "decidedly best to reprint from the same plates, and put what new matter has come to hand in the form of an Appendix." Whether this view of the case will be shared by his patrons, in view of the radical nomenclatural changes made since 1884, may possibly be questioned, yet the policy is doubtless sound, considered from a publisher's standpoint. Dr. Coues, however, cordially accepts and adopts the new nomenclature, and evidently and very properly, looks with much satisfaction upon his honorable share in the work of bringing about the 'new status.' Referring to the objects kept steadily in view by the A. O. U. Committee on the Classification and Nomenclature of North American Birds — namely, the establishment of "certain sound principles or canons of nomenclature applicable to zoölogy at large as well as to ornithology," and the application of "these rules consistently and effectually to the naming of North American birds" — he says: "Others must be left to judge how well or ill these purposes may have been accomplished, but the simple fact is that no sooner had the book [A. O. U. Code and Check-List] appeared than it became the standard and, indeed, the only recognized Nomenclator in American Ornithology. That which the Committee had stamped with the seal of the Union become the current coin of the realm. . . ."

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* Key to North American Birds. Containing a concise account of every species of living and fossil bird at present known from the Continent north of the Mexican and United States Boundary, inclusive of Greenland and Lower California, with which are incorporated General Ornithology, an outline of the structure and classification of birds; and Field Ornithology, a manual of collecting, preparing, and preserving birds. The Third Edition, exhibiting the new Nomenclature of the American Ornithologists' Union, and including descriptions of additional species, etc. By Elliott Coues, A.M., M.D., Ph.D. [etc.]. Profusely illustrated. Boston: Estes & Lauriat, 1887. Royal 8vo, pp. x + xxx + 895, 1 col. pl., and 563 woodcuts.

The nomenclature in the body of the new 'Key' being left unchanged, the adjustment of the old nomenclature to the new is made through the medium of the Appendix, where the two systems of names are arranged in parallel columns, thus not only presenting his readers with the new names, but at the same time affording a convenient means of collating the old and the new. In the same connection some sixty species and subspecies, with descriptions of the same, not included in the body of the work, are interpolated, bringing the subject down to date as seen from the standpoint of the author. This large number is partly due to the inclusion of Lower California within the area covered by the new 'Key,' in accordance with the boundaries of 'North America,' ornithologically considered, adopted in the A. O. U. Check-List, but mainly, of course, to birds added to the fauna since 1884.

In his preface to the new edition (p. iii) Dr. Coues records "an earnest protest, futile though it may be, against the fatal facility with which the system of trinomials lends itself to sad consequences in the hands of immature or inexperienced specialists," fearing that our excellent 'trinominal tool,' and "the whole system of naming we have reared with such care," be brought into disrepute. He, however, disclaims allusion "to anything that has been done"; the warning relates to what may happen in future if "more judicious conservatism than we have enjoyed of late be not brought to bear down hard upon trifling incompetents." "It may be assumed," he adds, "as a safe rule of procedure, that it is useless to divide and subdivide beyond the fair average ability of ornithologists to recognize and verify the results." This, in an abstract sense, is sound advice, much in line with sentiments and admonitions the present writer has given voice to on several occasions. In the sentence which follows the one last quoted (p. iv) we can hardly suppose the author intends to imply that when specimens of a named variety require to be 'compared with the types' for their satisfactory identification that such 'varieties' should be always ignored. He must know that words oftentimes fail to express differences which to the eye are not only readily appreciable, but appeal to us as of so tangible a character as to require nomenclatural recognition, presenting a fact to which it would be not only a great convenience to have a handle, but one of which our science must in some way take cognizance. Again, how often descriptions are faulty, falling so far short of what they should be as in many cases to prove practically valueless. It is not to be denied, however, that the splitting process may be, and in some cases perhaps has been, carried too far, and this, too, by those who would hardly fall into the category of "trifling incompetents." Just how far division may be profitably carried, or is even necessary, is a hard question to decide, and one which taxes alike conservatives and radicals. In the case of wide-ranging species, diffused over an area of greatly varying climatic and other physical conditions, a common stock often runs into numerous well-marked offshoots, the extremities of which differ much from each other, and which, in their extreme phases, present no difficulties of recognition or characterization, but which insensibly merge together at certain points within the general habitat. These various forms are obviously the result of differences in the environment—incipient species, instructive facts, links in the chain of evolution, demanding a means of expression to which the trinomial system is readily subservient. Each well-marked physical region of a continent has generally a more or less well-marked form, which it seems profitable to recognize by name, the degree of differentiation of course varying with the placticity of the species. It at present seems sufficient to recognize such forms as are correlated with certain more or less definite or natural geographical and climatal areas.

These remarks are suggested by the large number of species and subspecies of late described from the southern border of the United States and the contiguous region southward. A conservative person, judging these forms by the descriptions, feels naturally some bias against them, and is inclined to consider them as cases of too fine splitting, but later, when confronted by the evidence afforded by the actual specimens. is obliged to admit that the alleged differences are not imaginary, and that we have, in short, really a new 'fact,' requiring a 'handle.' This is an experience to which even the writer of this notice is willing to confess. In some instances the 'types' of newly described forms have been in some of our leading collections for a generation, awaiting the accumulation of material sufficient to reveal the significance of certain differences, perhaps long before recognized but not understood. The true explanation of the recent increase of new forms is in part the accumulation of material from hitherto imperfectly explored fields, or from localities not before examined, and the careful collation of the spoils thus gathered. The work of Mr. Sennett in Texas is strikingly in point, where novelties never dreamed of are rapidly coming to light, and quite revolutionizing our notions of the Texan ornis; while Mexico comes into view as almost an ornithological El Dorado.

In the Appendix to the new 'Key' Dr. Coues perhaps intends to enforce the lesson of his preface, as well as to record his dissent (see p. iii of preface) respecting the status of certain forms admitted to the A. O. U. Check List, and as his judgment on forms since described. The revision thus made, we are compelled to say, strikes us as rather off-hand, and as made in the library, rather than with specimens of the forms in question actually under examination,—a rather unsafe proceeding in the present state of the subject, and one tending to inconsistency in results. About twenty species included in the 'Check-List' are not recognized in the 'Key,' three or four of which appear to have been rejected as being doubtfully North American, and the rest as not entitled to recognition. On the other hand, about ten are included which the A. O. U. Committee deemed it best to omit, and about seventeen others which they relegated to the 'Hypothetical List,' with which reference we presume Dr. Coues still concurs, although they of course appear (necessarily) in the comparative lists of the Appendix.

The 'Key' is still entitled to the high favor it has hitherto received, and will prove, as it ever has, a work of the greatest utility. It has, of course, its short-comings, but they detract little from its usefulness. Some of its statements about the nesting-habits of certain species or groups of species are a little too sweeping, and the descriptions of the eggs, as to number and color, not always above criticism, while there are a few lapses of a graver sort. When the fourth edition is called for, as it doubtless ere long will be, the author may then find it expedient to once more recast and perfect a work which has not only proved a great boon to the ornithological public, but has had unquestionably a marked influence upon the progress of ornithology, and done more than any other to make the subject popular and comprehensible to the general reader. —J. A. A.

Townsend's Field-notes on the Birds of Northern California.*— Mr. Townsend's 'Field-notes' were based on observations made in the counties of Siskiyou, Shasta, Tehama, and Lassen, April 1, 1883, to July 15, 1884, and in Humboldt County, Nov. 15, to Dec. 17, 1885. To make the list of birds as complete as possible for that portion of California north of the fortieth parallel, he has added to the two hundred observed by himself some sixty additional species made known by others as inhabitants of the region, making 261 in all. The list is copiously annotated and contains interesting biographical matter. His account of the nest and eggs of the Black-throated Gray Warbler (*Dendroica nigrescens*) is especially noteworthy as the first for the species. The bird portion of the paper closes with a table illustrating the vertical range of birds of Northern California, modelled after a similar one in 'The Auk' (Vol. II, 1885, p. 11) by Mr. F. M. Drew on the birds of Colorado.

The 'Field-notes' on the mammals and reptiles are equally full and interesting, but of course call for no special remark in the present connection. A useful sketch-map of the region accompanies the paper, and several pages of introductory matter describes the topographical features of the country under notice. —J. A. A.

Shufeldt's Contributions to Avisection.† — Dr. Shufeldt continues his admirable avisections. His latest article reviews some of the taxonomically important musculatures. These are, namely, five pectorimyons;‡

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*Field-notes on the Mammals, Birds, and Reptiles of Northern California. By Charles H. Townsend. Proc. U. S. Nat. Mus., 1887, pp. 159-241. (Birds, pp. 190-237.)

†A Review of the Muscles Used in the Classification of Birds. By R. W. Shufeldt, M. D., C. M. Z. S., Captain Medical Corps, U. S. Army, etc. Journ. Compar. Med. and Surg., Oct. 1887. 24 pp.

‡*Myon*, any individual unit of musculature; what Dr. Coues formerly called a "muscular integer." — *Pectorimyon*, any myon of the pectoral arch or shoulder girdle proper. — *Pelvimyon*, any myon of the pelvic arch or hip girdle.

five pelvimyons; the so-called "obturator internus"; several syrinomya; and the tendons of profundiplantar mya. The five pectorimya treated are: — 1, tensor patagii longus; 2, tensor patagii brevis; 3, dermotensor patagii; 4, bicipital slip to the patagium; and 5, expansor secundariorum.* The five pelvimya discussed are the ambiens and those other four already handled with much effect by Garrod and others under their respective symbols, A, B, X, Y.† If the author is correct in identifying the muscle he called "obturator internus" with the myon of that name in hominisection, it is the obturiformis of Coues and Shute,‡ whose origin, whether oval or triangular, is discussed in its possible bearing on classification. The paper concludes with remarks well worthy of attention, on the profundiplantar tendons. It is quite fully illustrated with thirteen figures, in part original. — E. C.

A New Ornithichnite.§ — Prof. F. H. Snow describes and figures a fossil, apparently that of a true bird, found in August, 1885, in Ellsworth Co., Kansas, in an excavation 44 feet deep in the Dakota Sandstone, on a geologic horizon about 200 feet below the upper level of the Dakota rocks. "The impression appears to have been made by the left foot of some bird with elevated hind toe just reaching the ground at its extremity, as in the modern Snipes and other Wading-birds, or in the family of Sea Gulls and Terns." The fossil is a small one, only two inches in total length. The object is not named, but Prof. Snow compares it with such a track as the foot of an *Ichthyornis* might have made." The discovery of this avian footprint. . . .considerably lowers the geological horizon of Kansas birds," which were not before known from strata below the Niobrara group, or highest of the Cretaceous rocks, beneath which the Dakota "rests unconformably upon the Permio-Carboniferous, with apparently an entire exclusion of the Triassic and Jurassic formations." — E. C.

Clark's 'Birds of Amherst.'‖—This annotated list of the birds occurring about Amherst seems to have been written not as an exhaustive contribution to faunal literature, but rather for the enlightenment of the farmers and the community at large. It begins with an artificial key to the species, and further brief descriptions precede the annotations upon each species. The work is unusually, and for the ornithologist rather inconveniently, arranged, being divided into three parts: "birds of regular and certain appearance in Amherst at the proper seasons," "birds of irregular and uncertain appearance in Amherst: or which may be common in other parts of the County while rare or accidental in Amherst," "birds extremely rare or accidental in the County." One hundred and seventy-seven species are enumerated, four-fifths of them land-birds, some of the less common ones being given on the authority of E. O. Damon, W. A. Stearns and others. The annotations include not only notes upon the abundance, seasons of occurrence, and often the dates of arrival in spring, of each species, but contain also brief statements of habits. The pamphlet is well printed, with but few typographical errors.

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*The progress of improvement in myological terminology makes it desirable to rename some of these mya. They may be called: 1, longitensor patagii; 2, brevitensor patagii; 3, dermotensor patagii (of Shufeldt); 4, bicipitensor patagii; and 5, secundexpansor.

†A = femorocaudal; B = "accessory femorocaudal," which is now named accessicaudal; X = semitendinosus; Y = "accessory semitendinosus" which is now called accessitendinosus.

‡See N. Y. Med. Record, July 30, 1887, p. 125.

§On the discovery of a fossil bird-track in the Dakota Sandstone. Trans. Kansas Acad. Sci., Vol. X.

‖The | Birds of Amherst | and Vicinity, | including nearly the whole of | Hampshire County, Mass. | — | Herbert L. Clark, | with an Introduction by | Prof. C. H. Fernald Ph. D. | — | Amherst, Mass.: | J. E. Williams, Publisher. | 1887. 8vo. pp. 55.

It is to be hoped that the author will continue his observations, and after several years more of field work will give us a further report upon the fauna of his neighborhood. Probably he will be able to record the occurrence of some species not yet noted, and may find reason to change a few of his statements as to habits and abundance. — C. F. B.

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GENERAL NOTES.

Larus atricilla at Springfield, Mass.—Yesterday I captured near Springfield a Laughing Gull (*Larus atricilla*). This fact may not be worthy of note, but not having seen or heard of one here before, I conclude it was a rare bird to find so far in the interior. The Great Black-backed, Herring, and Ring-billed Gulls are often here.—Robert O. Morris, *Springfield, Mass., Oct. 2, 1887.*

The Yellow-nosed Albatross (*Thalassogeron culminatus*) in the Gulf of St. Lawrence.—During a recent visit to the Museum of Laval University, Quebec, I was shown by the Curator, Mr. C. E. Dionne, the skin of an Albatross which, upon examination, proved to be of this species. Mr. Dionne assured me that he obtained the skin in September, 1885, from a fisherman who said he had captured the bird a few days previously in the Gulf of St. Lawrence. The skin had been preserved in salt, and when it reached the Museum was soft and quite fresh. This is the first record of the occurrence of this species in the Atlantic, its usual habitat being the Indian and South Pacific Oceans.—MONTAGUE CHAMBERLAIN, *St. John, N. B.*

Cory's Shearwater at Newport, R. I.—In the Auk for January, 1887, an account was given by Prof. Baird of the occurrence of great numbers of Jaegers and Cory's Shearwaters, found feeding upon the young herring, which, towards the end of September, 1886, abounded from Point Judith to Vineyard Sound. On the 30th of the same month, I received from J. Glynn, Jr., of Newport, a Shearwater which appeared to me to be *Puffinus borealis*, and Mr. Cory has since kindly confirmed the identification. This furnishes some evidence to show that the flight of these birds extended as far west as the mouth of Narragansett Bay.—WILLIAM C. RIVES, JR., M. D., *Newport, R. I.*

The Black Duck in Chihuahua.—In April, 1879, I was with Col. A. K. Morrow, then Major in the 9th Cavalry, and a small detachment of cavalry and Indian scouts scouting in northwestern Chihuahua, Mexico. While in camp at the Laguna Palomas, an alkali lake fed by warm springs, just inside the Mexican line, I observed, among numerous other ducks of different varieties, a flock of six or eight birds that I thought were Black Ducks. After trying in vain to get a shot with my shotgun, Colonel Morrow succeeded in killing one with a cavalry carbine. As I suspected, it turned out to be a true Black Duck; a variety I had been familiar with since my boyhood on Long Island Sound. The Laguna Palomas is in about longitude 107° 30′ W. and about three miles south of the line between New and Old Mexico.—R. T. EMMET, *Ft. Niobrara, Nebraska.*

[The species here referred to is probably *Anas fulvigula*, which, so far as now known, is the form of Dusky Duck occurring in Texas and adjoining parts of Mexico.—ED.]

Rallus longirostris crepitans breeding on the Coast of Louisiana.—Mr. Ridgway, in his 'Manual of North American Birds,' gives the habitat of this species as the "salt water marshes of Atlantic coast, north regularly to Long Island, casually to Massachusetts."

It gives me pleasure to be able to extend its range to the Gulf coast. While at Grand Isle, which borders the Gulf of Mexico at the entrance of Barataria Bay, Louisiana, in June, 1886, I secured an old bird and two young, which, when compared with specimens of *R. l. saturatus* in the National Museum, proved not to be that variety, but the true Eastern bird, variety *crepitans*.—A. K. FISHER, M. D., *Washington, D.C.*

Ionornis martinica in Arizona.—About October 20, 1887, a Chinaman caught a female Purple Gallinule in his vegetable garden on the Santa Cruz bottom opposite Tucson. He gave it to a Mexican boy from whom I purchased it ten days later. The bird was in good plumage, but its wings and tail were somewhat cage-worn. Length, 11.50 inches; extent, 21; wing, 6.80; tail, 2.72; tarsus, 2.25. This, so far as I can learn, is the first of its kind ever taken in Arizona.—HERBERT BROWN, *Tucson, Arizona.*

Habits of the Purple Gallinule (*Ionornis martinica*).—While spending the spring and summer of 1887 at Yemassee, S. C., I found the Purple Gallinule to be the most common and characteristic of the birds breeding there. The locality where I found them was an old rice plantation of about six or seven hundred acres. This abandoned rice plantation is used as a reservoir, or, in local parlance, a 'backwater.' It is kept filled with water, to flow the rice of adjoining fields, and is usually covered with water to the depth of three to four feet. The whole 'backwater' is overgrown with rushes, the broad-leafed pond lily (*Nymphæa odorata*) and the Nelumbium (*Cyamus flavicomus*). I found the Gallinules very common—there must have been at least five hundred pairs of birds. It was a very beautiful sight to see the graceful creatures walking over the large leaves of the pond lily, every now and then flirting their tails, or holding their wings over their heads, as they walked from one leaf to another. When flying, chasing one another, the legs are always hanging down, and the birds are cackling the whole time while engaged in this sport. They have several very peculiar call-notes, one which is very guttural, is to be heard incessantly. They are exceedingly tame—one can almost step on them before they take wing. If wounded they dive immediately, and remain under water for fully five minutes at a time, and it is folly to waste time in following them up, as they rise with only the point of the bill out of water. The soft parts in life are as follows:—Crown shield, azure blue, legs bright yellow, the tip of bill greenish yellow, and the middle of bill bright red.

The nests are commenced about May 5. They are built in rushes, invariably over water, and are made of half decayed rushes. The nest is substantially built, and well secured to the rushes which grow in the water. The birds have regular trodden paths leading to their nests, and, strange to say, there are always three or four nests in all stages of completion near each nest which contains eggs. The eggs are from four to nine, almost invariably six. They measure about 1.60 × 1.15 inches, and are pale cream color or yellowish, spotted with brown or purplish. They vary in size and markings; some of the eggs I collected are larger than typical specimens of the Florida Gallinule, and some as small as large specimens of the Virginia Rail. I never saw a Gallinule sitting—day or night, rain or shine—and I really believe the eggs are hatched by the decomposition of the materials which compose the nest. The young can easily be raised, and become perfectly tame. The breeding season is a long one, as I had a very young bird in the downy stage sent me alive on September 17. Its appearance is as follows: Upperparts glossy black, the lower parts sooty, the throat, cheeks, and top of head with silvery white hairs. The base of bill is yellowish, the lower mandible, and part of upper jet blackwith a white spot, which rises to a point on the tip of upper mandible ;this white spot resembles 'white lead.' The wings are also covered with silvery hairs.—ARTHUR T. WAYNE, *Charleston, S. C.*

Unexpected Occurrence of Certain Shore Birds in Texas in Midsummer and in Breeding Plumage.—

Macrorhamphus griseus. DOWITCHER. — June 11, two adults, ♂ and ♀, in full breeding plumage, and two immature birds in the act of moulting or changing from winter to summer dress.

Macropalama himantopus. STILT SANDPIPER.—July 3, one adult female in breeding plumage.

Tringa canutus. KNOT.—July 1, ♀; July 3, ♂; July 10, ♀; all adults in full breeding plumage.

Totanus melanoleucus. GREATER YELLOW-LEGS.—June 13, ♂; July 3, ♀; both adults in full breeding plumage.

Charadrius squatarola. BLACK-BELLIED PLOVER.—July 1, one adult male in nearly full breeding dress. On May 12, 1882, I took at same place an adult male in full breeding plumage.

All of the above were taken at Corpus Christi, Texas, in 1887, by my collector. *Ægialitis nivosa*, Snowy Plover, breeds there and is not uncommon; large series of adults and young were secured. Five males, six females, and one immature bird changing to breeding plumage, of *Arenaria interpres*, Turnstone, were sent me, and any number could be taken in July. The adults were in as fine dress as if taken in Labrador. This confirms the observations of Dr. J. C. Merrill and myself during the last ten years. No eggs were secured, but that the bird breeds there can hardly admit of a doubt.—GEO. B. SENNETT, *Am. Mus. Nat. Hist., New York City.*

The European Kestrel in Massachusetts.—A female example of the European Kestrel (*Falco tinnunculus* Linn.) was shot at Strawberry Hill, near Nantucket, Mass. on Sept. 29, 1887. The bird was killed by a man who was hunting for Plover at the time, and was sold with other birds to Mr. C. I. Goodale, 93 Sudbury St., Boston, where I had the pleasure of examining the specimen in the flesh shortly after it was killed. This is, I believe, the first record of its occurrence in North America. The skin is now in my cabinet.—CHARLES B. CORY, *Boston, Mass.*

Ulula cinerea in Steuben, Co., New York.—I am pleased to report the occurrence in this locality of the Great Gray Owl; a female in fine plumage was shot some five or six miles southwest of this village on the 10th of last February by a farmer who claimed it was trying to catch his chickens. It was so tame he thought he could have easily killed it with a club. The bird was thin, and from the appearance of its digestive organs it had fasted a long time.—A. H. Wood, *Painted Post*, *Steuben Co.*, *N. Y.*

Megascops asio floridanus in Louisiana.—While in New Orleans, in June, 1886, Mr. Gustave Kohn kindly gave me a number of birds and reptiles from his collection. Among them was a Florida Screech Owl (*Megascops asio floridanus*), several specimens of which he had secured in the vicinity of New Orleans. I believe this bird has not before been recorded from Louisiana.—A. K. Fisher, M. D., *Washington*, *D. C.*

Ceophlœus pileatus in Franklin County, Massachusetts.—During the month of August, 1886, two Pileated Woodpeckers were shot at Ashfield, Franklin Co., Mass.; and on October 7 of the same year a third, which I have, was shot. It is a male, but in not very good plumage, as it was moulting at the time it was shot.—Richard Norton, *Cambridge*, *Mass.*

Breeding of the Prairie Horned Lark in Eastern New York—A Correction.—In the Bulletin of the Nuttall Ornithological Club, Vol. VI, p. 177, I noted the capture, in April, 1881, of two young Horned Larks, just able to fly, and two adults, male and female, at Green Island, N. Y., and called them, specifically, "*Eremophila alpestris*"—not knowing their proper race name.

Mr. William Brewster lately saw the mounted skins of these birds and informed me that they are of the variety *Otocoris alpestris praticola*, described and named, in 1884, by Mr. H. W. Henshaw, in 'The Auk,' Vol. I, pp. 254-268.

I have given very little attention to the Horned Larks of this vicinity, but know of specimens of the variety *praticola* taken within five miles of Troy, N. Y., February 22, 1883, and in March and October, 1887. A larger and darker colored variety, probably *alpestris* proper, visits this locality in winter; and I have a specimen of that race captured here about April 25, 1845.—Austin F. Park, *Troy*, *N. Y.*

The Prairie Horned Lark (*Otocoris alpestris praticola*) on the Coast of Massachusetts. — Looking over a large series of Horned Larks in my collection I lately found a pair of perfectly typical *O. a. praticola* labelled "Revere Beach, Massachusetts, February 28, 1883." Under this date my journal has the following entry: "I shot these birds [Nos. 7925, 7926] with another, a female similar to No. 7926, near the beach in a field where the ground was partly bare of snow. There were only three of them in all. The testes of the male were of large size but the ovaries of the females not correspondingly developed."

The female "similar to No. 7926" was badly shot, if I remember right, and not suspecting at the time (fully a year, it should be noted, before the appearance of Mr. Henshaw's admirable paper on the genus *Otocoris*) that it was anything more than a small dark specimen of *O. alpestris*, I doubtless threw it away. The fact that *praticola* has been found breeding within less than twenty-five miles of the western boundary of Massachusetts,* taken in connection with that of the captures above recorded, makes it seem not improbable that the form in question may occur regularly, if rarely, in Eastern Massachusetts during the migrations, and perhaps as a summer resident in the extreme western portions of the State.—WILLIAM BREWSTER, *Cambridge, Mass.*

Occurrence of the Florida Blue Jay (*Cyanocitta cristata florincola*) **in Southwestern Texas.**—On the eleventh of March, 1887, while collecting at Leon Springs, Texas, I came up with a party of four or five Blue Jays in a grove of hackberry and live oak trees. Supposing them to be the ordinary eastern bird, only one of them was shot, and although they were seen several times at San Antonio, no other specimens were secured. Upon comparing my bird with typical examples of *Cyanocitta cristata florincola* in the United States National Museum, I find it to agree perfectly with them. The principal characters that distinguish the Florida bird from the specific form consist in the smaller size of the former and the much less amount of white on the secondaries and the two outer rectrices.

Mr. Ridgway, who first suggested that my specimen was *florincola*, entirely concurs with me in this determination.

This Jay is evidently a rare bird in Southwestern Texas, for the only authority I can find for its occurrence there is in Dresser's classical paper, where he states that he "was told by several hunters that the Blue Jay is found near San Antonio." Leon Springs is in Bexar County, about eighteen or twenty miles northwest of San Antonio. — CHARLES WICKLIFFE BECKHAM, *Washington, D. C.*

Abnormal Plumage of Xanthocephalus xanthocephalus.—I shot, October 21, 1887, in the valley of Mud Creek, thirty miles southeast of Las Animas, Bent Co., Colorado, a female *X. xanthocephalus*. It could fly well but was quite young. The barrels of most of the quills of wings and tail were dark and full of liquid. The plumage was more loose and ragged than is usual in birds that can fly. It differs from all young females I have seen as follows:—

Lesser wing-coverts whitish; scattering white and whitish feathers in hind neck, interscapulars, back, upper tail-coverts, breast, belly, crissum and flank. Feathers of the breast long and rounded — looking like cotton strings. One secondary in right wing whitish on both webs for one inch; middle tail-feathers the same for half their length. Right outer tail-feather pure white. One downy, round feather one and a half inches long, starting from below oil gland. It was with two other young birds. The date is much later than I have ever seen these birds in Colorado.—P. M. THORNE, CAPT. 22d INFTY., *Fort Lyon, Colorado.*

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* See Mr. Park's note above.

Notice of the Presence of Quiscalus quiscula æneus in Upper South Carolina. — I have lately given some attention to the capture of Crow Blackbirds, having in view especially the discovery of subspecies *æneus*. My efforts in this particular direction, however, were unsuccessful until Nov. 5, 1887, when I obtained a single male from a small flock near Chester C. H. Nov. 12, a second male was taken in the same locality from a little band of half-a-dozen. On the 21st three additional males and four females, together with two examples of the typical form, were secured from an immense assemblage in the neighborhood of Chestnut Grove in the northern part of Chester County. The continued recurrence of birds chiefly peculiar to the West accentuates anew the necessity of a thorough overhauling of the ornithology of this region. — LEVERETT M. LOOMIS, *Chester, S. C.*

Quiscalus quiscula aglæus in Louisiana.—In the October, 1887, Auk (p. 303) Mr. Beckham states that the Bronzed Grackle (*Quiscalus quiscula æneus*) was the form found at Bayou Sara, Louisiana. In the Journal of the Cincinnati Society of Natural History, for July, 1881 (p. 150) Dr. Langdon reports "a few specimens, evidently residents, shot for the purpose of identification, prove to be of the *purpureus* form." In the early summer of 1886, at New Orleans and vicinity, the Florida Grackle (*Quiscalus quiscula aglæus*) was the only one of the smaller Grackles which I secured or observed. With the exception of one Bronzed Grackle, taken in winter, all the specimens in the collection of Mr. Gustave Kohn, were of this form. From this it will be seen that the three varieties have been found in Louisiana in the breeding season. Bayou Sara and New Orleans are about eighty miles apart, by air line, though more than twice that distance following the course of the river. It will be interesting to discover just where between these two points the three varieties meet.—A. K. FISHER, M. D., *Washington, D. C.*

Breeding of the Evening Grosbeak (*Coccothraustes vespertina*) in the White Mountains of Arizona. — In 'The Auk' (Vol. IV. No. 3, p. 256, 257) I observed two notices of the occurrence of the Evening Grosbeak; one from Toronto, Canada, the other from Hickman, Kentucky. In the latter case Mr. J. A. Allen is quoted as stating that "its occurrence anywhere south of the Great Lakes is rare." It may, therefore, be of interest to readers of "The Auk" to know of an instance of this bird having bred as far southwest as the head-waters of the Little Colorado River in the White Mountains of Arizona.

On June 5, 1884, while looking out for anything of ornithological interest in a thickly wooded cañon some fifteen miles west of the little town of Springerville, Apache County, Arizona, my attention was attracted by a bird which I did not know, flying off its nest in the top of a thick willow bush. Having climbed up to the nest and ascertained that it contained three eggs I returned to the ranch. Next day I visited the cañon with my shotgun, and finding that the number of eggs in the nest had not increased, concealed myself close by, and after a long wait succeeded in procuring the female as she flew from the nest. At that time I knew so little about American birds or their eggs that I took no eggs except when I could authenticate them by procuring the female bird.

The nest was a comparatively slight structure, rather flat in shape, composed of small sticks and roots, lined with finer portions of the latter. The eggs, three in number, were of a clear, greenish ground color, blotched with pale brown. They were fresh. The nest was placed about fifteen feet from the ground in the extreme top of a thick willow bush. The slight cañon, with a few willow bushes in its centre bordering a small stream, lies in the midst of very dense pine timber at an altitude of about 7000 feet, as far as I can judge.

I mentioned the fact of my having taken the nest of the Evening Grosbeak to my friend, Mr. E. W. Nelson, but at first he was decidedly sceptical on the subject. On November 5, 1885, however, while staying at Mr. Nelson's ranch, eight miles southwest of Springerville, and during a slight snowstorm, I saw a second specimen of this species among a large number of Mexican Crossbills (*Loxia curvirostra stricklandi*) but failed to kill it. Next day (Nov. 6), while riding near the same place with Mr. Nelson, we came upon three Evening Grosbeaks, and after several shots he succeeded in killing a fine male with a charge of bucksnot! These are the only occasions that I have known of this bird being seen anywhere around here, but ornithological observers here are few and far between.—JOHN SWINBURNE, *Springerville*, *Arizona*.

[Mr. Swinburne is probably the first ornithologist who has had the good fortune to find the nest of this species, although Mr. W. E. Bryant's later discovery has already been recorded.*—ED.]

Occurrence of Coccothraustes vespertina in Iowa.—Among other visitors from the north, during the winter of 1886–87, numbers of Evening Grosbeaks appeared in this neighborhood. About the middle of December several were observed a short distance north of the city, but it was not until the first of February that they began to appear in the principal streets. When first noticed in the town, there was a flock of twenty-five or more feeding upon the samaræ which were still attached to the branches of the box elders. The kernels of the keys were quickly and adroitly removed and the refuse allowed to fall upon the snow beneath, which after a short time was thickly strewn with the remains of the feast. February 23 a flock of over one hundred suddenly appeared on the University campus, and after remaining an hour or more, departed. From this date until April 30, nearly ten weeks, it was their custom to visit the campus early in the morning and remain until noon, when they would fly away and spend the remainder of the day elsewhere. During their stay the food of these birds consisted chiefly of the samaræ of the box elders and sugar maples, the young leaf buds of various trees, seeds, and grain; to obtain the latter, the whole flock would often alight on the ground and eagerly devour the scattered grain. As spring advanced they were usually seen, especially early in the morning, in the top of some tree, singing or chattering noisily, thus attracting the attention of nearly every passer-by. Their loud, clear, rather harsh, piping notes, uttered in concert, reminded one forcibly of the familiar chorus of a flock of Rusty Blackbirds in the spring, and have also been likened to the shrill piping arising from some frog pond on a quiet summer evening. In Iowa, the Evening Grosbeak may be regarded as a rare and erratic winter visitor, though its appearance is perhaps most regular in the northern portions of the State. It arrives from the north about the middle of November and remains until May. Prior to last winter it has been observed in the vicinity of Iowa City but once—in February, 1884. Correspondents have also reported this species from Charles City, in March, 1879; Grinnell, December and April, and Burlington in the southeastern part of the State.—C. R. KEYES, *Iowa City, Iowa.*

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* Bull. Cal. Acad. Sci. Vol. II, 1887.

Loxia curvirostra minor again at Yemassee, S. C.—On November 20, 1887, two Red Crossbills were seen at Yemassee, S. C., by my collector who shot large numbers in April for me.—ARTHUR T. WAYNE, *Charleston, S. C.*

A Philadelphia Vireo and a Cobweb.—On September 13, 1886, while collecting in a thicket near Bardstown, Kentucky, my companion, a small boy, called my attention to the peculiar actions of a bird eight or ten paces in advance of us. It proved to be a Philadelphia Vireo (*Vireo philadelphica*) suspended by the tip of its right wing from a twig at a distance of three or four feet from the ground, violently struggling to free itself. Flying above, within a few feet of it, was another individual of the same species, an apparently interested and distressed witness of the strange performance. Both birds were shot, and upon examination I discovered that the first one had become entangled in a sticky, cobwebby substance that was found to be quite common during that season in the locality mentioned. The end of the wing was completely 'gummed up' with the viscous filaments, and the struggles of the captive had twisted the web into a slender and elastic but strong cord, the other end of which was attached to the twig. The webs in question I found only in thickets, and had been much annoyed by often running against them and getting the glutinous stuff on my face and hands. It is doubtless produced by some spider, but I have never recognized the species. However, I think it improbable that the wily Arachnid deliberately attempts the capture of such large game, and in this particular instance it was doubtless as much surprised as the cockney sportsman in 'Punch,' who fired at a hare and killed a calf.—CHARLES WICKLIFFE BECKHAM, *Washington, D. C.*

Helminthophila leucobronchialis in Pennsylvania.—A specimen of this bird was taken, August 31, 1887, in the central part of Chester Co., Penn., on the edge of a dense swamp. It differs from the type in being more washed with yellow below, and olive above. Dr. Fisher (to whom the bird was sent for indentification) writes that it closely resembles his specimen from Englewood, N. J. (See Auk, IV, p. 348).—WITMER STONE, *Germantown, Pa.*

The Yellow-breasted Chat Breeding in Malden, Mass.—On June 2, 1887, while exploring a large tract of wooded swamp in the eastern part of Malden, I was so fortunate as to discover a nest of the Yellow-breasted Chat (*Icteria virens*). The bird was sitting when I approached the nest which was almost completely concealed by the thickly-clustering leaves of a dense, stunted witch-hazel bush growing in a partially cleared tract of swamp. She sat very close, and made little complaint when she flew. The nest held five eggs, the full complement, which I found to have been incubated a few days. I visited the nest several times, nearly always finding both parent birds near it. A brood of three was successfully reared, and left the nest on June 19. The nest is now in my possession. It was built three and a half feet from the ground, and is very thick-walled and deep. On June 29 and 30 I saw a Chat that might have been the male of this pair. On both occasions he was in a dense thicket fully a mile from the nest.—H. P. JOHNSON, *Everett, Mass.*

Sylvania mitrata at Germantown, Pennsylvania, in November.—On November 19, 1887, Mr. Herbert Brown, of Germantown, presented me with a Warbler that he had just shot, and which proved to be a Hooded Warbler (*Sylvania mitrata*) in immature plumage. The bird was taken in a cabbage patch where it was apparently feeding on insects.—WITMER STONE, *Germantown, Pa.*

On the Nesting of Palmer's Thrasher.—In 'The Auk,' Vol. IV, No. 2, Col. N. S. Goss asks: "'What constitutes a full set of eggs?" In reply I offer no suggestions, but pass my observations, which were carefully and conscientiously made, to the more mature judgment of others.

Among the birds most common on the cactus-covered plains of Arizona, is Palmer's Thrasher (*H. c. palmeri*). I particularly speak of this bird because of my long familiarity with it. From observations made in 1885 and 1886 I was led to believe that three eggs constituted a full set, but my oölogical notes of 1887 on this particular point are much at variance with those of the two preceding years.

March 6, 1885, I fonnd a nest of this bird containing four young sufficiently feathered to fly. I secured several nests containing eggs—generally three—but four was no uncommon number. I also noted other nests containing a like number of young, but none of the latter so far advanced as the ones first mentioned. By the 13th nesting was well under way, not only with the *palmeri*, but also with the Bendire's Thrasher (*H. bendirei*) and Cactus Wren (*C. brunneicapillus*). I cite these additional cases as proof of the early nesting of birds that year. Throughout the next several months I had occasion to examine many nests of the *palmeri*, nearly always with the same result. Two eggs I considered an imperfect set, and as such left them undisturbed, unless debarred by distance from returning for them when the set was completed. Those that were taken were almost invariably fresh, while sets of three and four were frequently more or less incubated. Towards the latter part of May I was at the Quijotoa, some eighty or ninety miles southwest of Tucson. In that vicinity Palmer's Thrashers were exceedingly abundant. I had there an opportunity to examine many nests, and, to my surprise, they contained but two eggs each. This, however, I attributed to the fact that the eggs in question were, as I supposed, the second or third broods of the season.

In 1886 I was early in the field, and although nests had apparently been completed for several weeks past I did not find an egg of a *palmeri* till February 28th. On that day I took two nests, each containing three eggs. March 28 I was again out, and took a nest of four. April 18, another nest containing three. From various causes this practically ended my observations for the year.

In the spring of the present year (1887), for some cause unknown to me, the nesting season opened unusually late, although as in the preceding year some nests had apparently been ready for weeks. On March 20 I took three nests of the *palmeri*, each containing two slightly incubated eggs. April 10 I examined eleven nests of this same bird, seven of which contained two young each, one, one young, two, two eggs each, and one, three eggs. April 17 I examined seven more nests; three contained two young each, three, two eggs each, and the other, one egg. April 24 I examined three nests, of which two had two eggs, and one, one egg.

May 15 I took two nests, one of which contained two eggs and the other had four. The latter were unusually light in color and much undersized. May 16 a boy brought me a nest containing three eggs which he assured me were all of the same set; but this is doubtful, as one egg was larger than the other two and pinkish in color. All were much incubated. May 20 I examined six nests, four of which contained two eggs each, one three, and one one. May 21 I examined five nests, four of which contained three eggs each, the other two eggs. May 24 I examined six nests, two of which contained three eggs, two, two eggs each, and two, one egg each.

Jnne 4 I took one nest containing two eggs. June 14 one nest with two eggs. June 19 one nest with three eggs. Beyond this I could give them no attention, but I have certain knowledge that they continued nesting late into July.

If the numerical difference here noted was due to climatic changes, why were not the Bendire's Thrashers affected likewise? Both occupy the same locality and have a similarity of habits. The Bendire's nested later than the Palmer's, as usual. It was April 10 when I noted the first eggs of the Bendire's Thrasher. That was a month, all but three days, later than I found them in 1885. During the past season I examined eighteen nests of this bird, eight of which contained three eggs each, seven contained two eggs each, two contained one egg each, and one nest contained four. This enumeration does not include nests found containing young, several of which I examined, but in no one instance did I see less than two. There is no difference, on the average, in the size of sets between the years 1885 and 1887.

The winter and spring of 1884–85 were unusually cold. Ice an eighth of an inch thick formed repeatedly in the valley, and the mountains were as often snow-capped. The winter and spring of 1885–86 were very mild, but more especially were those of 1886–87. Unfortunately I cannot give the temperature, but the appended table shows the extent of the rainfall:—

Year.	*Jan.*	*Feb.*	*March.*	*April.*	*May.*	*June.*
1885	0.00	0.42	0.40	0.00	0.23	0.13
1886	1.61	0.35	0.87	0.06	0.00	0.00
1887	0.00	0.85	0.00	0.38	0.00	0.26

Dried grass usually is a staple article with Palmer's Thrashers for nest lining. A nest last year lined with feathers and grass was the first deviation I had ever seen from it, but this year nothing seemed to go amiss for that purpose. Those nesting in the vicinity of a slaughter-house frequently economized on grass by using about one half pig bristles. In a nest of this build I also saw a piece of baling rope that had been skilfully worked in. I saw several that were lined with grass and horsehair, also several that were lined with grass and feathers. The *H. bendirei* by no means confine themselves to grass for nest lining, as is abundantly evidenced by my oölogical notes.—HERBERT BROWN, *Tucson, Arizona.*

Feeding Habits of Sitta canadensis.—On the 28th of October last in the Northern Adirondacks I noticed that the Red-bellied Nuthatches seemed to be feeding exclusively on the seeds of the black spruce. After that I watched them for a number of days, and although they were abundant, I did not see them feeding on anything else. Alighting on a bunch of cones at the extremity of a bough, the Nuthatch would insert its bill between the scales of a cone and draw out a seed. Then flying to a horizontal bough near by it would detach the wing which adheres to each seed, letting it fall to the ground, swallow the seed, and fly back for another. Frequently a good many trips would be made between the same bunch of cones and the same bough where the wing was separated from the seed.

The Red-bellied Nuthatches were very abundant — much more so than the White-bellied — and it was an interesting sight to watch them feeding in this way. One specimen, killed while feeding, contained no food but the seeds of the spruce. I did not observe the White-bellied Nuthatch make use of this supply of food. — C. K. AVERILL, JR., *Bridgeport, Conn.*

Spotted Eggs of Parus gambeli. — In the spring of 1882, when living at Gold Run, in the Belt Mountains, I noticed a pair of Mountain Chickadees flitting about a knot-hole some fifteen feet up in a cotton-wood tree.

Thinking the birds might have selected the place for their nesting I visited it several times, usually finding at least one of the birds about, and sometimes getting within arm's length of both of them. On June 23, just after a blustering snowstorm, I went to the place and found the upper part of the knot-hole drifted in with snow, and the birds absent. Cutting open the hole, which had evidently been enlarged somewhat by one of the smaller Woodpeckers, and was about ten inches deep, there lay six eggs on a thin matting of rabbit's hair. The eggs are white, all distinctly marked with pale reddish brown spots, quite numerous and more or less confluent about the larger end, and gradually diminishing in numbers toward the smaller. The largest egg measures 17.5 × 12. mm., the smallest 16. × 12. mm. On comparison with four eggs of *P. atricapillus septentrionalis*, obtained on the North Fork of the Musselshell River, they prove considerably more elongated, with slightly rounder ends and larger, much paler, spots. The largest egg of the last-mentioned bird is 16.5 × 12.5 mm., the smallest 15.5 × 12.5 mm.—R. S. WILLIAMS, *Great Falls, Montana.*

What Birds indicate Proximity to Water, and at what Distance?—Mr. William Lloyd, in his explorations in the arid region of Western Texas, has made some highly important observations, the results of which cannot fail to be of the utmost value to travellers on our southwestern plains, where water is scarce and difficult to find. Mr. Lloyd writes: "During the past summer, I have been investigating an important question which occurred to me about four years ago, namely, What birds indicate the presence of water in their neighborhood? Of course any statement on the subject should be proved by a number of facts, based on experiments in different localities. Three times this summer I have camped from simply seeing certain birds, and on hunting for water have found it in each case. As certainties I can give the following species, with the greatest distance at which each occurs from water.

Cardinal	1 mile.
Warblers (including Chat)	1 mile.
Vireos	2 miles.
Mockingbirds	2½ to 3½ miles.
Blue Grosbeak	" "
Orchard Oriole	3 miles.
Bullock's Oriole	3 miles.
Nonpareil	3 miles.
Carolina Dove	3 to 5 miles.
Black-capped Titmouse	4 miles.
Texas Cardinal	6 miles.

This only applies to summer, and will not hold in winter or during migrations. I have been constructing this list since the summer of 1883; and also have particularly noted what birds drank, and how often, in Dec.-Jan., 1884-1885; Nov.-Dec., 1885; and Jan., 1886."—C. HART MERRIAM, *Washington, D. C.*

CORRESPONDENCE.

[*Correspondents are requested to write briefly and to the point. No attention will be paid to anonymous communications.*]

Propatagialis cucullaris.

To the Editors of The Auk:—

Dear Sirs:—Having given space in 'The Auk' to Dr. Shufeldt's rejoinder to an article of mine in another publication, which probably few of the readers of 'The Auk' have had the opportunity to familiarize themselves with, will you kindly allow me to say a few words in my defense, the more so, as Dr. Shufeldt has told this new class of readers that my first paper was "a rather acrimonious protest" in which I "so misrepresented the entire matter," etc. I regret very much that the editor of 'Science' did not think Dr. Shufeldt's reply fit for publication, since, had it appeared in that journal, I should have saved myself the trouble of answering his irrelevant rejoinders and counter-criticisms. The readers of 'Science' who knew the previous articles would also know how to correctly place his reply, and would be competent judges whether I had "misrepresented the whole matter" or not. It is also characteristic that Dr. Shufeldt did not make this accusation in the reply intended for 'Science,' but in the part prepared for 'The Auk' only. To this accusation I can only say, read the original articles and judge! In every instance I quoted Dr. Shufeldt *verbatim*. Besides there was no room for misrepresentation.

The whole sum and substance of the controversy is this: In 'Science' for June 24, 1887, Dr. Shufeldt announced what he took to be the discovery of an unknown muscle in the bird's wing, which he thought without a name, and which he therefore named *dermo-tensor patagii*, alleging that it had a special taxonomic value. My article in 'Science' for August 5, 1887, demonstrated that Dr. Shufeldt was entirely wrong in all his suppositions. I proved that this muscle was not confined to the *Passeres acromyodi*, but that it is equally well developed in Parrots and Woodpeckers; I proved that the muscle, so far from being unknown and unnamed, was well known in literature, and had not one but many names; and I proved that Dr. Shufeldt's allegation that the late Professor Garrod in particular was ignorant of the existence of this muscle, was equally unfounded.

I did not blame Dr. Shufeldt for not knowing these things, and, surely, I did not exhibit any "acrimony." I did not feel any then, and I do not feel any now. I only stated scientific facts, killed a false notion at its birth, and assigned '*dermo-tensor patagii*' to the limbo of synonyms. That was my entire crime!

I repeat, I did not blame Dr. Shufeldt for not knowing the literature on this point, in fact, I did not then blame him at all, for I knew very well the disadvantages under which he labors, and which he justly pleads as extenuating circumstances. But when a student knows these difficulties himself, he has no excuse for rushing into print with his so-called discovery because he does not find this small muscle mentioned in a few English works, either too general or too special for the purpose. There was no need of hurrying the publication of such half-digested matter; if Dr. Shufeldt had inquired from one of his many correspondents who had access to the literature, and had postponed the heralding of the discovery until its importance had been confirmed, he might have saved himself considerable trouble and the mortification of a correction.

Now only a few words in reply to Dr. Shufeldt's letter in 'The Auk' (1887, pp. 353-356), and in order to be brief and to avoid repetitions, I shall take up his points *seriatim*.

It is curious to hear Dr. Shufeldt call the authorities whom I quoted "dissectors, as a rule, who did not especially look into the structure of the birds with the view of determining their affinities." Now the fact is quite the reverse, and by his remark Dr. Shufeldt clearly proves that he does not know these men, nor their works. It is sufficient to state that most of them are comparative systematists whose aims and achievements in this latter direction make Dr. Shufeldt appear a mere "dissector" by comparison.

Dr. Shufeldt in speaking of my defense of Professor Garrod says: "I am, as it were, directly charged with doing Professor Garrod a 'great injustice', and 'gravely misrepresenting' him, *as if* that were the *sole aim* of my original description" (italics mine). Suffice it to say that the "*as if*" is a pure insinuation. I have made no such allusion nor have I hinted at Dr. Shufeldt's *aim*. There is not a word to indicate that I thought Dr. Shufeldt misrepresented Garrod willingly or knowingly. He did misrepresent him nevertheless.

That Dr. Shufeldt failed to find a trace of *propatagialis cucullaris* in two specimens of *Tyrannus tyrannus* while I myself discovered distinct muscular elements, shows very plainly the unstable character and comparative unimportance of this muscular slip.

We now come to the second half of Dr. Shufeldt's reply, which may safely be characterized as an attempt to raise sufficient dust to conceal the real questions at issue, for he takes nearly a whole page of the valuable space of 'The Auk' to criticise such parts of my drawings as have no bearing upon the discussion. But as he has raised these side-issues, and finally comes back to them in the finishing paragraph of his reply with a somewhat supercilious allusion, I am obliged to ask some space in order to demonstrate how utterly devoid of foundation his allegations are. First he makes some remarks in regard to the scale to which my figures were stated to have been drawn, viz., one third natural size. Any "intelligent" reader will at once see that this statement is due to a clerical, or a typographical error. I received no proof of the figures illustrating my original article nor of the explanatory text accompanying them. Of course when I saw the number of 'Science' containing them I immediately discovered the lapsus, but I had sufficient confidence in the readers of that journal to believe that not a single one of them could be deceived by it, and consequently I deemed it unnecessary to formally correct such a trifling matter. The original drawings were natural size, and on the paper I marked them to be reduced to one third, hence, of course, the mistake. But I will here emphasize that this is the *second time* that Dr. Shufeldt, in a controversy with me in this journal, has taken advantage of an *obvious* error of this kind. There are at least half a dozen other typographical errors in that paper of mine, for my return proofs evidently did not reach the printer in time, and it is only a matter of surprise to me that Dr. Shufeldt did not avail himself of the opportunity to add another valuable page to his reply.

His remark that I have represented the "tips of the shoulder in close anatomical connection with the *side of the middle of the neck*" is too ridiculous to be seriously meant. Or, has really Dr. Shufeldt overlooked that the mesial line is designated by a double line indicating the skin which is left in position on the right side of the body, while the single line to the extreme right represents the contour of the neck? Surely, Dr. Shufeldt is right in the last paragraph of his letter in exclaiming "let us, gentlemen, have intelligent drawings," but allow me to supplement it by praying: "Let us also have intelligent readers!"

I hardly know how to characterize Dr. Shufeldt's remark that I have represented the *biceps* muscle as "inserted into the *extensor metacarpi radialis longus*," etc. In view of this extraordinary statement I shall have to modify my above prayer somewhat, and say: "let us have *moderately* intelligent readers, at least!" or "Let us have readers who are willing to open their eyes!" Anybody with eyes and willing to see, will find upon examining my fig. 2, that the muscular slip which "is inserted into the *e. m. r. l.*, between the *tenso patagii brevis* and the humerus" is not lettered *b*, but the muscle lying behind it and partly concealed by it! The tendon to which Dr. Shufeldt refers is not lettered at all!

The above may be sufficient to lay the dust. Aside from the consideration that his criticisms of my drawings are unfounded, to say the least, Dr. Shufeldt ought to have carefully avoided any allusion to unintelligent drawings,—for he who lives in a glass house should not indulge in throwing stones, according to an old adage, the soundness of which may be indisputable even in New Mexico,—as will be perfectly demonstrated by the following interesting reflections. When Dr. Shufeldt made the figures to accompany his first paper ('Science,' June 24, 1887, figs. on p. 624) he still labored under the impression that *Rhamphastos* was figured by Garrod as the type of a passerine bird ("Garrod chose the wing of *Rhamphastos cuvieri* to illustrate the arrangement of the patagial muscles in the Passeres"). He copied this figure (fig. 1) and accordingly inscribed it (" . . . . left wing of a passerine bird, *Rhamphastos cuvieri*" . . . .). He then drew the arm muscles of a Swallow (fig. 2) to match, showing his own discovery; but believing the *Rhamphastos* to be one of the Passeres he fell into the—to an avian anatomist—most unpardonable blunder of representing the Swallows as having the *propatagialis brevis* inserted in the same way as the *Rhamphastos*, in other words, after the fashion of the picarian birds. Whether that drawing was sent to 'Science' by a mistake, or not, is of no consequence; the fact remains that a man, who is going to teach others all about the "taxonomic muscles" in birds, has prepared such a drawing and finished it so far that it could be reproduced by the regular photo-engraving process. I approve most heartily of Dr. Shufeldt's concluding sentence: *Yes, let us by all means have intelligent drawings!!*

Finally a few words in regard to the name of the much talked of muscular slip.

The only *rational* name of it is the one given by Fürbringer, viz., *pars propatagialis musculi cucullaris*. This is evidently an instance "where the name is five times as big as the muscle," which, "for the sheer sake of clearness and convenience," Dr. Shufeldt wants to lay aside as an abominable name bestowed by the "old anatomists." Here Dr. Shufeldt again proves his ignorance of Dr. Fürbringer and his works. Fürbringer is not one of the "old anatomists," he is one of the younger ones, and he is, moreover, the great reformer of myological nomenclature "for the sheer sake of clearness and convenience." The name given by him signifies that this muscle is only a patagial slip of *musculus cucullaris*, leaving nothing to be desired in regard to clearness and convenience, for, of course, in speaking of it Fürbringer does not use the whole name, but simply "*propatagialis cucullaris*," which is hardly longer than Dr. Shufeldt's "*dermo-tensor patagii*." The latter, however, is neither clear nor convenient, for surely *propatagialis longus* is the true *dermo-tensor patagii*, and not the slip of *cucullaris*, which in most cases is only a *dermo-tensor parapatagii*.

Washington, D. C., December, 1887. LEONHARD STEJNEGER.

NOTES AND NEWS.

IN THE last number of the 'The Auk' (Vol. IV, p. 359) reference was made to the movement for the erection of a monument to John James Audubon in Trinity Cemetery, New York City. The movement has now become well organized, under the lead of a committee of the New York Academy of Sciences, consisting of Prof. Thomas Egleston of the School of Mines, Chairman, Dr. N. L. Britton of Columbia College, Secretary and Treasurer, and Prof. Daniel S. Martin of Rutgers Female College. As already stated (see p. 97 of this issue), a committee to coöperate with the committee of the New York Academy was appointed by the American Ornithologists' Union at its late meeting in Boston, consisting of Dr. George Bird Grinnell, Chairman, and Messrs. William Dutcher and George B. Sennett. Committees in further aid of the work have been appointed by the Linnæan Society of New York, the Torrey Botanical Club of New York, and the Staten Island Natural History Association. Circulars soliciting subscriptions have already been issued by several of these Committees, a joint meeting of which will soon be held in New York, on a call for this purpose from the Committee of the New York Academy, to perfect plans for carrying on the work.

It is estimated that from $6,000 to $10,000 will be required in order to erect a monument worthy of the naturalist whose memory it is intended to commemorate. It is hoped that at least the larger of these amounts may be raised. The character of the monument will of course depend upon the amount of money secured. It is not desired that any individual subscriptions of large amount be sent, it being preferable to have the testimonial rest on contributions from as many as possible of the great naturalists' admirers, representing all sections of our country. Gifts from abroad will be welcomed, but the work is obviously and primarily for Audubon's countrymen. It is hoped that each of the three hundred and odd members of the A. O. U. will feel it a privilege to contribute, with as little delay as possible, to the fund. Contributions sent to the Treasurer, Mr. William Dutcher, 51 Liberty Street, New York City, will be duly acknowledged, and permanently recorded.

On the completion of the monument it is intended to make the unveiling a public ceremonial befitting the occasion, thus further appropriately recognizing the great services of Audubon as a pioneer in American ornithology. A list of the contributors to the monument fund might very fittingly be included in the permanent history of the undertaking, showing how widely and heartily his memory is still revered among not only ornithologists, but the public at large, and especially among naturalists who are not distinctively bird men.

MR. R. BOWDLER SHARPE, in 'The English Illustrated Magazine' for December, 1887, in an article entitled 'Ornithology at South Kensington,' gives some account of the ornithological collection in the British Museum, detailing with evident pride its rapid increase and generally satisfactory progress during the last fifteen years, and contrasting very favorably its present condition with its status in the old galleries of the British Museum at Bloomsbury, before the removal to the new quarters at South Kensington. The article is full of important suggestions bearing upon the care and general management of such collections, well worthy of consideration by those having them in charge. Unfortunately we have space to notice only a few of the many statements of interest. He wisely advocates the exhibition of birds in natural groups, mounted in characteristic attitudes, and with accessories giving some idea of the habits and manner of life of the species, the public, he believes, "infinitely preferring a few artistic and naturally mounted birds to whole rows of specimens on stands, without any explanatory labels to relieve the tedium of the conventional mounting." Already thousands of specimens in the old collection have been unmounted and variously disposed of since the abandonment of "the time-honored tradition in the mode of mounting animals." As he well says, "every bird exposed in a glass case is doomed to destruction sooner or later, its fate being merely a question of time, as exposure to the light is certain to bleach the plumage and deteriorate the appearance of the specimen; . . . . therefore the main zoölogical collections are preserved in cabinets and hidden from the light, and there is no reason why they should not be available for the purposes of study for many hundred years."

Mr. Sharpe describes in detail the series of the groups of British birds with their nests; the 'Index' collection, illustrating the osteology of birds, the structure and growth of feathers, the formation of the beak and feet in the principal forms of birds, etc., and the groups illustrating the hybridization of species in a wild state, and the variation of species under domestication.

During the last fifteen years, or since Mr. Sharpe was placed in charge, the bird department of the British Museum has advanced from a third-rate position to the first; the study collection has increased from 40,000 specimens to 200,000, and with the additions already promised and soon to be incorporated, will "reach the astounding number of 250,000." This, too, with very little encouragement from the Government towards the increase of the collection, its course in this respect contrasting, Mr. Sharpe claims, very unfavorably with that of other nations. This great increase is due to "the private collections, which formerly eclipsed the national one in value," having been given to the Museum. Among these are the Hume collection of nearly 85,000 Indian birds and eggs, and the American series of Messrs. Salvin and Godman, and Dr. Sclater, "which doubled at one stroke the number of specimens in the Museum." Besides these the Wallace and Gould collections have been added, and Mr. Seebohm's splendid collection of Palæarctic birds and eggs has been promised, while Captain Wardlaw Ramsay has announced his intention of presenting the immense series of Asiatic birds collected by the late Marquis of Tweeddale, numbering 40,000 specimens. Mr. Sharpe closes with an enthusiastic appeal to Englishmen everywhere to render still more perfect the already unrivalled collection under his charge.

Mr. Henry Seebohm has issued a prospectus of a work on 'The Geographical Distribution of the Charadriidæ (Plovers, Sandpipers, and Snipes, etc.).' In referring to this important announcement 'Nature' adds the following pertinent comment: "The unrivalled collection of Wading Birds in Mr. Seebohm's possession supplies the material for this work, and the volume will undoubtedly be one of great interest to ornithologists. Mr. Seebohm's ideas on nomenclature, the influence of the Glacial epoch on the migration of birds, and kindred subjects, are always original, and this new work of his will open, according to the prospectus, with an introduction setting forth his latest opinions. There is also to be given 'a complete synonymy from 1776 to the present time,' a rather appalling announcement, and one involving a vast change in ornithological nomenclature, as it will preclude the use of Linnæan names."

At the last meeting of the A. O. U. the Council, which has hitherto acted as a Publication Committee, relegated this function to a committee, consisting of the President and Secretary, Dr. Coues, Mr. Ridgway, and Mr. Brewster, most of whom were formerly on the Editorial Staff of 'The Auk,' which now consists of the editor and one assistant editor, the latter being Mr. C. F. Batchelder, of Cambridge, Mass. Being assured of efficient aid in the work of carrying on the journal, Mr. Allen consented to retain the editorship for another year, Mr. Batchelder kindly taking upon himself the greater part of the labor.

The 'sensation of the hour' in certain scientific circles in New York City is an alleged discovery of great significance in the mechanism of birds' wings, whereby the extension of the wing in soaring is maintained automatically, or without the exertion of any muscular force on the part of the bird. That there is a mechanism for this purpose, resulting from the peculiar structure and relations of the bones of the fore-arm and hand, was long since discovered by anatomists, and is more or less well known to every well-informed ornithologist. But the 'discovery' now under notice is of a different character, having no relation to the bony framework of the wing, but to the primaries, and the alleged ability of the bird to so rotate the individual feathers at will as to practically turn them wrong side out! In other words, the inner vane of the first primary is brought from its normal position and function of underlying and supporting the second primary and made to *overlie* the second primary, — that is the first primary is imbricated upon instead of beneath the second, as it is normally seen — and in like manner the second upon the third, and the third upon the fourth, and so on. This position of the feathers, it is alleged, keeps the wing from closing, and enables the bird to soar indefinitely without experiencing fatigue. The fact that such a position of the feathers greatly weakens the power of support, by permitting the air to pass freely through the wing between the vanes of the primaries, and is besides so obviously contrary to the whole plan of a bird's wing as an effective instrument of flight, to say nothing of the well-known inability of the bird to thus arrange the primary quills, were points too trivial, in the opinion of the advocates of the new theory, to be entitled to serious consideration.

The matter was first made public in a communication by Professor W. P. Trowbridge, professor of engineering in Columbia College, to the National Academy of Sciences at its meeting held in November last in New York City. Professor Trowbridge stated that the discovery was made by his son, whose attention was directed to the matter by finding a Hawk he had just shot with the primaries overlapped in the manner above described, suggesting the inference that this arrangement of the feathers was a provision for keeping the wing expanded in flight without muscular exertion on the part of the bird. Professor Newberry spoke in approval of the brilliant discovery and of its obvious importance, and, there being no ornithologists present, the discovery passed unchallenged, not only at the meeting, but into print, in the columns of 'Science' and elsewhere.

Some weeks later, a paper was announced on new discoveries in the mechanism of flight in birds, by Professors Newberry and Trowbridge, as a part of the evening's entertainment at the meeting of the New York Academy of Sciences for December 12. The title naturally attracted the attention of a number of ornithologists, who made it a point to attend the meeting. The communications covered, in a general way, the whole subject of the flight of birds, but the special point was, of course, the new discovery of the voluntary "interlocking of the primaries" so as to automatically prevent the closing of the wing during protracted flight. As soon as an opportunity was afforded, the ornithologists present quickly pointed out the utter absurdity and impossibility of the new 'discovery,' the speakers in opposition being Messrs. D. G. Elliot, J. A. Allen, and George B. Sennett. The arguments these gentlemen advanced failed to convince at least the principal advocate of the new theory, who declared, with some warmth, that he "was not a fool," and accepted the challenge to demonstrate by dissections all that he had claimed, including the ability of the bird to rotate and interlock the primaries. Accordingly the announcement card for the meeting of December 19 contained the following: "Prof. W. P. Trowbridge will exhibit wings, showing the tendons, as claimed, for the flexion, extension, and rotation of the primaries." The New York ornithologists were accordingly on hand, some of them provided, as well as Professor Trowbridge, with fresh preparations of birds' wings, to witness the promised 'demonstration.' Professor Trowbridge's exposition of the well-known muscles of flight and their functions was entirely successful, but his claim of showing also muscles capable of rotating the primaries so as to reverse their usual mode of imbrication was challenged by the ornithologists present, and finally this part of the 'demonstration' was abandoned, and the question at issue reduced to the discovery of a new muscle in the manus, having the function to open and close the primaries — "a muscle unknown" to ornithologists or anatomists, and hitherto undescribed. The muscle in question being the well-known *m. interos·eus palmarum*, comment on the new point would be superfluous. He still claimed, however, in his closing rejoinder, that birds had the power of interlocking the primaries, as he originally maintained. This, with the peculiar summing of the controversy at the close of the meeting by the President (Professor Newberry) 'from the chair' renders it highly probable that the ornithologists will re-open the subject at the next meeting of the Academy. The participants in the discussion at the second meeting, in addition to the two gentlemen already named, were Messrs. Allen, Elliot, Sennett, Dr. Holder, and Mr. E. E. Thompson, of Toronto, Canada.

The following extract from a private letter written to Mr. W. E. D. Scott, gives interesting information respecting the destruction of Herons and other birds for their plumes about Punta Rassa, Florida:—"From personal observation in the immediate vicinity of Punta Rassa, I can verify your account of the great decrease in the numbers of the birds since I went there in 1883. At that time it was a pleasure to sit on the piazzas of the telegraph station and watch the long flights of Herons, Pelicans, and Cormorants pass up the harbor on the way to their roosting places in the late afternoons; and at all times of the day some or all of these birds were to be seen in greater or less numbers. Each and every one of the small islands in the harbor within sight of our place was a nesting and roosting place for the Herons, Pelicans, and Cormorants and other birds at that time. In the spring of that year (1883) Isidore Cohnfeld, of New York, sent an agent to Punta Rassa, a Mr. Kornfeld, with a big lot of guns and ammunition, and he was the first one to inaugurate the crusade against the birds after my arrival there. Kornfeld died at Punta Rassa, but he was replaced by another agent, guns and ammunition were distributed liberally, and though the last agent, whose name I have forgotten, did not do much business, yet the slaughter was carried on from the start that had been made, and other parties reaped the benefit of Cohnfeld's plant. Shultz and I bought something near two thousand skins ourselves, a fact of which I have been rather ashamed ever since, but they came to us mostly in the way of trade, and we did not have any hunters in the field. That season satisfied me of the fate of the Herons unless a halt was made in the slaughter, and I talked against it, and tried to persuade some of the hunters to stop their shooting, but it had no effect. The usual answer was "others are doing it and I may as well get my share"; the same reason Johnson gave you. The following season, and in fact every season since then, the crusade has been kept up. Batty made his appearance there in the winter of that year, though his operations were confined more to the country south of Punta Rassa, but the next season he extended his business and had everybody shooting for him. Other parties were in the field also, and I received many letters from dealers in New York and Jersey City asking me to buy plumes for them, but I had had enough of it. Bird skins were taken at Myers in the stores in exchange for food and clothing, and the consequence was that during the spring preceding my departure from Rassa there was not a single bird nesting on more than one, possibly two, of the islands where before everyone of them had seemed to be overcrowded.

"I hope our next legislature will put a stop to this indiscriminate shooting. I have talked to our Senator from Key West, who is an old friend of mine, on the subject, and he is very much interested in it, and feels the necessity for some action in the matter at the next session of the legislature."

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THE BIRD ROCKS OF THE GULF OF ST. LAWRENCE IN 1887.

BY FREDERIC A. LUCAS.

THREE hundred and thirty-two years ago Jacques Cartier, voyaging in the Gulf of St. Lawrence, wrote as follows: "We came to three islands, two of which are as steep and upright as any wall, so that it was not possible to climb them, and between them there is a little rock. These islands were as full of birds as any meadow is of grass, which there do make their nests, and in the greatest of them there was a great and infinite number of those that we call Margaulx, that are white and bigger than any geese, which were severed in one part. In the other were only Godetz, but toward the shore there were of those Godetz and great Apponatz, like to those of that island that we above have mentioned; we went down to the lowest part of the least island, where we killed above a thousand of those Godetz and Apponatz. We put into our boats so many of them as we pleased, for in less than one hour we might have filled thirty such boats of them. We named them the Islands of Margaulx."

While this description, as well as the sentences which immediately precede it, contains some statements that apparently are at variance with existing facts, there is nevertheless good reason to believe that Cartier here refers to the Bird Rocks in the Gulf of

St. Lawrence.* The birds called Margaulx, "which bite even as dogs," were Gannets whose descendants, in spite of centuries of persecution, are to be found to-day, nesting where their ancestors did before them.

That Cartier's description of the islands does not accord with their present appearance is not to be wondered at. The material of which they are composed is a soft, decomposing, red sandstone that succumbs so easily to the incessant attacks of the sea that Dr. Bryant's description of them in 1860 does not hold good to-day. If, then, the Bird Rocks have undergone visible changes in twenty-five years, it is easy to imagine how great alterations the islets may have undergone during three and a quarter centuries.

Dr. Bryant in 1861 wrote as follows: "These [theBird Rocks] are two in number, called the Great Bird or Gannet Rock, and the Little or North Bird; they are about three-quarters of a mile apart, the water between them very shoal, showing that, at no very distant epoch, they formed a single island. . . . The North Bird is much the smallest and though the base is more accessible, the summit cannot, I believe, be reached, at least, I was unable to do so; it is the most irregular in its outline, presenting many enormous detached fragments, and is divided in one place into two separate islands at high water; the northerly one several times higher than broad, so as to present the appearance of a huge rocky pillar.

"Gannet Rock is a quarter of a mile in its longest diameter from S. W. to N. E. The highest point of the rock is at the northerly end where, according to the chart, it is 140 feet high, and from which it gradually slopes to the southerly end, where it is from 80 to 100.

"The sides are nearly vertical, the summit in many places overhanging. There are two beaches at its base on the southerly and westerly sides, the most westerly one comparatively smooth and composed of rounded stones. The easterly one, on the contrary, is very rough and covered by irregular blocks, many of large size and still angular, showing that they have but recently fallen from the cliffs above. This beach is very difficult to land on, but the other presents no great difficulty in ordinary weather; the top of the rock cannot, however, be reached from either of them. The only spot from which at present the ascent can be made, is the rocky point between the two beaches; . . . ."

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* I am indebted to the courtesy of Commander J. R. Bartlett, Chief of the Hydrographic Office, and to Mr. G. W. Littlehales, of the Division of Chart Construction, for very kindly supplying me with data to aid in solving this problem.

The Great Rock has apparently altered but little during the past twenty-five years, but such changes as have taken place have tended to improve the character of the southerly beach, which has been selected by the keeper of the lighthouse erected here, for the customary landing-place. Two long ladders, bolted to the rock, now lead to the summit, to which, by means of a winch and a fall, the lightkeeper raises his little boat.

The westerly beach, is, however, the most accessible, and it is here that the heavy lighthouse supplies are landed, a large hoisting apparatus having been placed at the top of the overhanging cliff.

If the Great Rock is but little changed, its lesser relative has suffered greatly from the ravages of time, and sea and frost, rain and ice, have wrought sad havoc with it. It cannot be called an easy spot to land on in any but the smoothest of seas, but once a landing has been effected it is now an easy matter to climb to the summit of either of the two portions into which it is divided.

The wide cleft which forms the division seems to be of comparatively recent origin, and it is only a question of time when there shall be two islets instead of one. The rocky pillar off the northeastern end still stands, but is separated from the little rock even at low tide, although if one does not mind cold water and slippery rocks, it is then easy to wade across the connecting ledge.

It is quite possible, or even probable, that the shoal running from Little toward Great Bird Rock marks the site of the third island and little rock mentioned by Cartier. Or again Cartier may have been at the islands only during flood tide, in which case the Pillar would represent the third island, then undoubtedly of much greater extent.

The birds do not seem to be divided into colonies according to species, Gannets and Murres being found in close juxtaposition, and although the Gannets prefer the upper ledges, yet their distribution is to a great extent regulated by the width of the rocky shelves, the Murres taking possession where there is not sufficient room to accommodate their larger companions. There is, however, a tendency of birds of a feather to flock together in little groups of a dozen or two, and at a distance the cliffs appear seamed with white, owing to the lines of perching Gannets.

The top of the rock is now entirely deserted by all birds except the little Leach's Petrels, who burrow in security among the fragments of stone that everywhere show through the shallow soil. Like all their kind these little birds stay at home all day in order to indulge in the reprehensible practice of staying out all night. Consequently none were visible at the time of our landing, late in the afternoon, although a few minutes digging unearthed, at the extremity of a single rat-like burrow, four birds and five eggs.

It is very evident from a little comparison that the interesting colony at the Bird Rocks has become sadly diminished in numbers. At the time of Cartier's visit, every inch of available space seems to have been occupied by breeding birds, and even so late as the time of Audubon this still appears to have been the case. The Gannets were then largely used for bait by the fishermen of Byron Island, and it is related how a party of six killed with clubs 640 birds in less than an hour. In 1860 Dr. Bryant estimated the number of Gannets breeding on top of the Great Rock alone at 50,000 *pairs*, although this is very likely too high a figure. In 1872, owing to the erection of a lighthouse, the colony on top of the rock had become reduced to 5000, and in 1881 Mr. Brewster found that the Gannets had been entirely driven from the summit, although the Little Rock was still thickly populated. He places the total Gannet population of the Rocks at 50,000 which is still an extraordinary and impressive number, though much less than the figures of previous observers.

At the time of Mr. Brewster's visit the Murres were rapidly decreasing in number owing "to the recent introduction of a cannon which is fired every half-hour in foggy weather. At each discharge the frightened Murres fly from the rock in clouds, nearly every sitting bird taking its egg into the air between its thighs and dropping it after flying a few yards. This was repeatedly observed during our visit and more than once a perfect shower of eggs fell into the water around our boat. So seriously had the Murres suffered from this cause that many of the ledges on the side of the rock where the gun was fired had been swept almost clear of eggs."*

Mr. Turbid, who very kindly afforded us all the assistance and information in his power, told us that the birds were gradually becoming used to the cannon and that the destruction from its use was now comparatively small.

In 1887, only six years later, not a single Gannet bred on the Little Rock although perhaps, a hundred and fifty may have found nesting places on the Pillar, while according to Mr. Turbid's figures not more than 10,000 dwelt on the ledges of the Great Rock. The decrease of the Gannets is most apparent, but the smaller birds have doubtless suffered in the same proportion. Scarce a day passes when the weather is at all favorable, without a visit from some party of fishermen desirous, like those we met at the Little Rock, of obtaining a few Murres for their table. In fact, while we were on the rock, three men landed on the westerly beach and opened fire on the Murres perched along the overhanging ledges, killing some and wounding more.

Many barrels of eggs are also gathered during the season, so that altogether the birds lead a precarious existence. Still a large portion of the island is, practically, so inaccessible that unless the feather hunters afflict this interesting spot with their presence the birds may continue to breed here in diminished numbers for a long time to come.

Besides that of the Bird Rocks the only large colony of Gannets in the Gulf of St. Lawrence is at Bonaventure Island, where, on the lofty and vertical cliffs of the eastern side, these birds breed in a state of semi-security. Dr. Bryant inadvertently locates this colony at Percé Rock, but although this curious and inaccessible island is only a mile or so distant, and the birds breeding on its summit are perfectly safe, not a single Gannet is to be found among them.

During the last twenty years the number of Gannets at Bonaventure Island has greatly diminished, and Capt. J. W. Collins told me when we visited the island in September, 1887, that he was surprised to see how the colony had fallen off.

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* Brewster. Proc. Bost. Soc. Nat. Hist. Vol., XXII, p. 410.

That it ever compared in extent with the Bird Rock colonies seems to me extremely doubtful, although Dr. Bryant has so stated. At Bonaventure some of the ledges are accessible to a good climber, while many others may be reached by the aid of ropes, so that by the continued pillaging of their nests the Gannets have greatly decreased in number.

A few Gannets still linger at Perroquet Island, of the Mingan group, in spite of the fact that Dr. Bryant predicted twenty-seven years ago that it would soon be deserted. In 1881 Mr. Brewster speaks of having seen several hundred birds, but in 1887 Capt. Collins found but a dozen or fifteen sitting by their empty nests. The Indians regularly make a clean sweep of this island, and it seems wonderful that a single Gannet should still exist here.

It was my fortune to visit the Bird Rocks on the 9th of July in company with Capt. J. W. Collins and Mr. William Palmer, our object being that of everyone who lands there, to kill birds and gather eggs.

We were favored with an unusually light wind and calm sea, and with a little precaution succeeded in beaching our boat on the shelving ledge on the southerly side of the Little Rock, with no farther accident than that of shipping a bucketful or so of water.

We found that we had been preceded by a party of three fishermen, who had killed a few Murres and Razorbills in order to make a little change in their daily bill of fare, stewed Murre being a dish by no means to be despised. Scores of Gannets were seated on the top of the islet or wheeling anxiously overhead, but a careful search revealed the fact that not an egg or nestling of this bird was to be found. Neither did there appear at first sight to be either egg or young of the Murre or Razorbill in any spot accessible to man, although by dint of much peering under ledges and peeping among the masses of fallen rock a few of each were brought to light. Some of these little nestlings were found in crevices of the rocks scarcely above the level of the tide, and had it not been for their faint but continuous peeping, their presence would have been quite unsuspected.

On the northern side, under the overhanging cliffs, a small number of Murres, Razorbills, and Puffins had their nesting places on the inaccessible ledges, and on the perpendicular walls of the southern side a few Kittiwakes had literally reared their young.

The top of the Pillar was closely packed with breeding Gannets, while here and there a few were dotted along its sides. As this isolated rock is not particularly easy to reach, these birds, together with a considerable colony of Murres, probably succeeded in raising their young, although their number was small compared with the number that might have been raised on the Little Rock had it not been swept clean by the fishermen. Three young Gannets, varying in age from one to three days, were secured from the sloping side of the Pillar, these, according to Mr. Turbid, the lightkeeper, being the first of the season, as the Gannet's period of incubation is much longer than that of the other birds breeding in company with it.

A visit to Great Bird Rock showed it to be the real breeding-ground of the birds, Gannets, Murres, Razorbills, and Puffins being both abundant and tame in spite of the fact that they are subjected to continual persecution.

No Gannets were seen on the Labrador coast east of Mingan, and none on the eastern coast of Newfoundland. At the time of Cartier there seems to have been a colony of these birds on Funk Island, and if one may credit the testimony of the fishermen, they were breeding there thirty years ago. But after the extermination of the Great Auk the fishermen and eggers seem to have done their best to extirpate the remaining denizens of this isolated spot, and it may well be that the Gannets were as effectually annihilated as the unfortunate Garefowl. Certain it is that no Gannets are to be found on Funk Island to-day, and but comparatively few Murres and Razorbills. Twenty years ago one boat took away eleven barrels of eggs on one trip; this year it is much to be doubted if (aside from the Puffins) there have been two barrelfuls laid on the island. Gannets are peculiarly liable to extermination from the pertinacity with which they cling to their old established breeding places; for once they have made a spot their home nothing short of complete destruction seems to drive them from it; and while there are many islands in the Gulf of St. Lawrence which would furnish suitable nesting-places for them, yet, year by year, they return to Bonaventure Island and Bird Rock.

ON THREE APPARENTLY NEW SUBSPECIES OF MEXICAN BIRDS.*

BY WILLIAM BREWSTER.

Glaucidium gnoma hoskinsii,† new subspecies.—HOSKIN'S PIGMY OWL.

SUBS. CHAR. Similar to *G. gnoma californica* but smaller and grayer, the forehead and facial disc with more white, the upperparts less distinctly spotted.

♂ *ad.* (No. 14,153, collection W. Brewster, Sierra de la Laguna, Lower California, May 10, 1887; M. Abbott Frazar). Above faded brown tinged with ashy on the crown and back, with faint rusty on the wings and tail, the crown, nape, and back with numerous small, indistinct, irregular shaped spots of rusty white, the rump and upper tail-coverts with larger, rounder ones of nearly pure white; fore back crossed by a collar of rusty ochraceous, this bordered anteriorly by blackish and some nearly concealed white; scapulars and some of the wing-coverts with large conspicuous spots of white or rusty white; wing quills crossed by numerous light bars, nearly obsolete excepting on the outer webs of the third, fourth, and fifth primaries where, beyond the point of emargination, they are distinctly marked by white spots, two or three on each feather, and on the inner webs of all the quills (excepting those of the emarginated primaries beyond the point of emargination), where they are pure white for about two-thirds of the distance from the inner margin to the shaft; tail crossed by seven imperfect bands of white (the last terminal) formed by narrow, transverse, opposite spots not touching the shaft on either side; forehead, nasal plumes, and sides of head sparsely flecked with dusky on a pure white ground; sides of neck uniform with nape; underparts pure white, the chin, sides of throat, jugulum, middle of abdomen, and anal region immaculate, the sides of the breast and a broad band across the throat reddish brown; flanks and under tail-coverts with coarse longitudinal streaks of clove brown more or less tinged with rusty; under wing-coverts and bend of wing white, the former with some coarse blackish markings; feathering of legs white, tinged, or perhaps obscurely flecked, with brown along the back of the tarsus.

Wing, 3.25; tail, 2.55; tarsus, .73; bill: chord of culmen from base, .50; ditto from nostril, .35; depth of bill at nostril, .35.

Two other adult males from the same locality, taken respectively June 1 and June 4, measure: wing, 3.33, 3.21; tail, 2.51, 2.35; tarsus, .76, .77; bill: chord of culmen from base, .55, .50; ditto from nostril, .32, 34; depth at nostril, .31, .35.

Habitat. Lower California.

[*An author's edition of 75 copies of this paper was published Feb 10, 1888.—ED.]

† To Mr. Francis Hoskins of Triumfo, Lower California, by request of Mr. Frazar to whom Mr. Hoskins rendered invaluable aid in the exploration of the Sierra de la Laguna.

Mitrephanes phæocercus tenuirostris, new subspecies.—Slender-billed Flycatcher.

Subs. Char. Similar to *M. phæocercus* but with the general coloring paler, the bill shorter and very much narrower.

♀ *ad.* (No. 14,150, collection W. Brewster, near Oposura, Sonora, Mexico, June 7th, 1887; J. C. Cahoon, No. 1129). Above brownish drab, the wings and tail nearly uniform with the back and crown but perhaps a shade browner; middle and greater wing-coverts tipped with white, forming wing-bands; forehead tinged with ochraceous; lores dusky; a narrow orbital ring of buffy white; a band or half collar passing around the hind neck, sides of neck, auriculars, cheeks, bend of wing, under wing-coverts, and remainder of underparts clay color, palest on throat and under tail-coverts, deepest—somewhat ochraceous—on the breast, under wing-coverts, and sides of neck. Length,* 5.45; extent,* 8.50; wing, 2.72; tail, 2.42; bill: length from base, .45; length from nostril, .25; width at nostril, .20.

Habitat. Western Mexico (Sonora, Mazatlan).

The National Museum collection contains eight specimens labelled *M. phæocercus*, one from Guatemala, one from Coban, three from Orizaba, two from Mazatlan, and one marked simply Mexico. Of these the first five may be referred confidently to *phæocercus* (the Guatemala specimen, from the collection of Messrs. Salvin & Godman, is marked "compared with type"). Of the remaining three one (No. 51,506, Mazatlan, Feb. 1868; F. Bischoff) has an even smaller bill than the type of *tenuirostris*. Although somewhat deeper colored it doubtless belongs to the same form. The two remaining birds have broader bills and still deeper coloring and are probably intermediate between *phæocercus* and *tenuirostris*.

Dendroica æstiva sonorana, new subspecies—Sonora Yellow Warbler.

Subs. Char. ♂ most nearly like ♂ *D. æ. morcomi* but with the underparts even more faintly and sparsely streaked, the upperparts, especially the rump, wings and tail much yellower, the light (yellowish) edging of wing-quills and coverts broader, the interscapulars with more or less conspicuous shaft-stripes of purplish chestnut; ♀ much paler and grayer than the ♀ of either *æstiva* or *morcomi*.

♂ *ad.* (No. 14,151, collection W. Brewster, Oposura, Sonora, Mexico, April 7, 1887; J. C. Cahoon, No. 559). General coloring rich gamboge yellow, deepest beneath, tinged with brownish orange on the crown, with faint greenish olive on the occiput, nape, back, scapulars, and outer edges of the primaries, secondaries, and greater wing-coverts; interscapulars with conspicuous shaft-streaks of purplish chestnut; rump, middle and lesser wing-coverts and both webs of tertials, pure yellow; upper tail-coverts yellow with broad shaft-stripes of dull brownish olive; tail feathers, rich yellow, the shafts black, bordered on the outer webs by dark brown for varying distances from the tips; on the outer pair the dark color extends backward about half an inch, on the others from an inch to an inch and three-eighths; on the middle pair it occupies most of the terminal two-thirds of the inner web also; all the tail feathers are yellow across both webs for half an inch or more from their bases, and on all the brown spaces are bordered outwardly with yellow; wing quills clove brown with the outer webs edged narrowly with greenish yellow, the inner webs rather broadly with pure yellow, the light edges failing to reach the tips of the outer seven primaries, but on all the remaining quills passing around and forming a more or less conspicuous tipping to the feathers; lining of wing and under wing-coverts pure yellow; breast and sides finely and sparsely streaked with faint chestnut red.

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* Collector's measurements of fresh bird.

Wing, 2.55; tail, 1.79; tarsus, .70; bill from base, .50; from nostril, .32; width at nostril, .12.

♀ *ad.* (No. 14,152, collection W. Brewster near Oposura, Sonora, Mexico, April 14, 1887, J. C. Cahoon, No. 666). Above very pale smoke gray, tinged faintly with yellowish, the wing-coverts and tail feathers more strongly yellowish, the tail feathers with the brown markings more extended than in the ♂; entire underparts very pale straw yellow, the throat and jugulum creamy white.

Habitat. Southern Arizona, Western Texas (Frontera) and Sonora, Mexico.

The male of the form just described may be separated at a glance from the male of either *æstiva* or *morcomi** by its much yellower coloring above, the rump being usually pure yellow, and the back and wings only faintly tinged with greenish, whereas *morcomi* is ordinarily even greener above than true *æstiva*. The underparts are always (?) more faintly and sparsely streaked than in *morcomi*, while in several of my specimens they are nearly quite immaculate. The purplish streaking of the interscapulars is usually a marked feature, but it is not always present in *sonorana*, while I have found it faintly indicated in two specimens of *morcomi*.

The female of *sonorana* is quite as strongly characterized as the male. The underparts are so very pale straw yellow as to appear almost white in a poor light, and the upperparts are very gray, with scarce a tinge of greenish.

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* I have examined the type in this connection.

Among the large series of Yellow Warblers before me I find four from Southern Arizona* and one from Western Texas (Frontera) which are referable to *sonorana*. A Colorado example is a fair intermediate between *sonorana* and *morcomi*. Typical *morcomi* is represented from Utah, California, Lower California, and Alaska. I also have two specimens from Sonora, but both were taken early in the season and doubtless were migrants bound further north.

NOTES ON THE BIRDS OF FORT KLAMATH, OREGON.

BY DR. J. C. MERRILL, U. S. A.

With remarks on certain species by William Brewster.

IN the fourth volume of the 'Bulletin' of the Nuttall Ornithological Club,† Dr. Mearns published a list of the birds of Fort Klamath, based upon the observations and collections of Dr. H. McElderry and Lieut. W. Wittich, U. S. A. The following paper is the result of my own collecting at the same place from September, 1886, to August, 1887, only such species as were personally observed or obtained‡ by myself being recorded. These include most of the land birds mentioned in Dr. Mearns's list,§ and a good many others; the water birds are relatively fewer in number, as my opportunities for collecting them were less favorable, and many species that are certainly to be found at the marsh and lake were not obtained.

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* Since the above was written Mr. Allen has kindly sent to me for examination seven specimens (three males and four females) taken in Pinal County, Arizona, by Mr Scott. All of these prove to be *sonorana*. They form part of the series of eleven specimens whose peculiarities were commented on with some detail in the last issue of Mr. Scott's paper (Auk, Vol. V, No. 1, p. 34). In the absence of sufficient material for comparison, Mr. Allen, at that time, very naturally referred them to *morcomi*.

† July and October, 1879, pp. 161-166 and 194-199.

‡ The collection—some two hundred and fifty skins—which I made at Fort Klamath is now in the possession of Mr. William Brewster, whose comments on technical points of especial interest are included in the present paper.

§ Except *Zonotrichia leucophrys*, *Pipilo m. megalonyx*, *Melospiza f. montana*, *Agelaius gubernator* and *Falco mexicanus*.

Other species, not included in either paper, are known to occur about the Fort, but I did not obtain specimens of them. Among these may be mentioned the Mountain and Valley Quails, rare as yet, but said to be increasing in numbers and extending their range; the Pileated Woodpecker, Purple Martin, Sage Grouse, and others. Among the oaks on the western slope of the Cascade Mountains, within about thirty miles, Nuttall's and the California Woodpecker are found, the latter in abundance.

Unless otherwise stated, my observations were made in the immediate vicinity of the Fort, the altitude of which is 4250 feet. The marsh frequently referred to is at the head of upper Klamath Lake, and about three miles from the Fort; it covers about eighteen square miles. Klamath Marsh proper is at the head of Williamson's River, and twelve miles to the northeast. Modoc Point is twenty miles south on the Linkville road, on the eastern shore of the upper lake. The elevation of Crater Lake, about the same distance in the opposite direction, is a little more than six thousand feet, but the edge of the Crater, which is the locality referred to when the lake is mentioned, is about nine hundred feet higher.

The winter was mild and open until the middle of January, when a severe snow storm began and continued, with few intermissions, until the first of March, the snow at that time being about five feet deep in the valley and very much deeper in the surrounding mountains. During April and May there was much cold and disagreeable weather, cold rains and light falls of snow, and the spring was more backward than usual.

Æchmophorus occidentalis. Common in the marsh during the breeding season, and until late in the autumn.

Podilymbus podiceps. Nearly as common as the last species, and found with it in the marsh and along the shores of the lake wherever tules grow.

Urinator imber. Several seen at Modoc Point in April and August.

Larus———. Gulls of at least two species were frequently seen on and near the lake, and occasionally about the marsh, but I did not obtain any specimens. They arrived late in March, singly and in flocks, and remained to breed on the islands in the lake.

Hydrochelidon nigra surinamensis. Common summer visitor, breeding in small colonies of six or eight pairs, generally near the edges of the marsh, but apparently placing their nests among tules and broken rushes surrounded by water too deep to permit approach by wading. The only nest I found was on a floating but almost submerged cow 'chip,' a rather unusual place for a bird's nest; it was at the edge of a grassy pond in the middle of which several Terns were nesting, and it had probably drifted to where I found it. On the top of the 'chip,' a large one, were a few water-soaked grass and tule stalks, and the lower half of the egg was wet, though the bird was on it when found.*

Phalacrocorax dilophus cincinatus? A Cormorant which I took to belong to this subspecies, but of which no specimens were obtained, was quite common during summer on the lake and Williamson's River. Several small flocks were also seen in August at Diamond Lake, the head of the south fork of the Umpqua River, and about fifty miles north of the Fort.

Pelecanus erythrorhynchos. Common on the lake, a part of which is called Pelican Bay, from the abundance of these birds which breed on certain islands.

Merganser americanus.

Merganser serrator. Both of these species are quite numerous.

Lophodytes cucullatus. Several pairs seen on the lake and in the marsh; a resident species.

Anas boschas. Very common at all seasons, breeding in great numbers in the marshes and in suitable places along the streams. They begin to lay late in March, but the middle and latter part of April is the usual time for incubation to begin. So many nests are destroyed by the Indians, who have an annual egging, by coyotes, and by high water, that fresh eggs may be found until early in July. A nest found June 22 contained eight eggs, out of each of which the duckling was beginning to break its way, making a constant peeping noise. It is, perhaps, uncommon for so many young to hatch at exactly the same time, though I was told that this is often the case with Mallards and other Ducks.

Anas strepera. Not common in winter nor during the migrations. A pair was seen in the marsh on May 27, and from their actions doubtless had a nest near by.

Anas americana. Common during winter.

Anas carolinensis. Common in winter, especially in the smaller streams which are always open, even in the coldest weather. A few pairs remain to breed.

Anas cyanoptera. Early in May several flocks of this beautiful Teal arrived, and before the end of the month it was common in the marsh, mostly paired and not at all shy. As I waded about the shallow pools of water which are their favorite resort, they would often allow me to approach within a few feet. A nest found June 3 contained eight fresh eggs, and was placed on a tussock of dry grass, the new green blades surrounding it. When found the female was on the nest, which she left hurriedly; on my return later she had covered the eggs with dry grass stems and blades, completely concealing both nest and eggs. Two nests found

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* A small white Tern, probably *S. antillarum*, was occasionally seen among the Black Terns, but none were secured for positive identification.

June 15 contained eight and ten nearly fresh eggs. These three nests were well and compactly made of dry grasses, and placed on tussocks; they were deeply cupped, with more or less down for lining, and were much more neatly made than Mallards'nests. The eggs before blowing are of a uniform creamy buff. Few of these Teal are seen after the first of October.

Spatula clypeata. Not uncommon during winter, but much more abundant during the migrations. In April mated pairs were almost as common as the Mallards, and in greater numbers than I have ever found this species elsewhere. A few remain to breed.

Dafila acuta. Common in winter and until the latter part of March.

Aix sponsa. Resident, but most common during spring and summer. A flock of six frequented the head of Squaw Creek, just outside the Fort, during the winter, and a fine male was shot January 29.

Aythya americana. Quite rare; but few seen or killed. The Canvasback is sometimes shot here, but I did not see any.

Aythya marila nearctica. Abundant from autumn till spring. On June 15 I watched a pair of this species— although it has not been recognized as breeding so far south, their size was certainly too great for *affinis*—for some time in the marsh, and from their actions am confident that they were breeding and had a nest or young close at hand.

Aythya affinis. More common than the larger Scaup during the fall and winter months. I do not think that it breeds.

Aythya collaris. Very common during winter, more so than either of the Blue-bills, and arriving earlier in the autumn. A few pairs remain to breed in the marsh.

Glaucionetta clangula americana. Common from the middle of October until April. Some remain in Wood and Williamson's Rivers, but the majority prefer the lake, which twice during the winter was covered with ice. They were then found in great numbers on all the streams, but most of them returned to the lake as soon as it opened.

Glaucionetta islandica. Occurring at the same time and places as the common Golden-eye, but much less abundant. I saw none during the summer on any of the mountain streams, where I looked carefully for this species and for the Harlequin Duck.

Charitonetta albeola. One of the commonest Ducks during winter, and found everywhere.

Erismatura rubida. A not abundant winter visitor; apparently does not breed.

Chen hyperborea. During the autumn of 1886 and spring of 1887 most of the Snow Geese migrated east of the valley in which the Fort is situated. A few were seen, but they were decidedly rare in comparison with the White-fronted and Canada Geese.

Anser albifrons gambeli. Very common in April, the main flight occurring between the 20th and 30th, and many flocks stopping to feed in the grassy meadows bordering the marsh. The upper part of the valley is enclosed on the west and north by the main divide of the Cascade Mountains, and on the east by a spur from the same range, all averaging a height of over 6500 feet. On stormy days, if the wind was not blowing from the south, Geese flying low up the valley had great difficulty in rising sufficiently to cross the abrupt divide, and most of them would return to the marsh and its vicinity to wait for a more favorable opportunity. At such times Geese of this and the next species gathered by thousands and afforded great sport. The immense numbers of these birds that migrate through Western Oregon cannot be appreciated until one has seen their spring flight, which, I am informed, extends in width from the coast inland about two hundred and fifty or three hundred miles. About fifty of this species were seen at the marsh on May 23, and twenty on May 27 and June 3, after which none were observed; their remaining so late excited general remark among the settlers.

Branta canadensis. This was the only Goose that remained in the valley during the winter. It breeds in considerable numbers. Many of the young are caught by Indians, and are easily domesticated. A few were kept at the Fort as pets; they were perfectly tame and fearless, flying from place to place for food, and sometimes circling around for an hour at a time for exercise. When old enough to breed they usually build their nests on the edge of Fort Creek or Wood River, sometimes within the Fort, at others two or three miles distant. When the female is sitting the gander is generally not far away, and a call of his mate, when her nest is approached, promptly brings him. At such times he generally flies directly at the intruder, whether man or dog, and unless dodged will strike a heavy blow.

Branta canadensis hutchinsii. This form migrates earlier in the spring than does *minima*, and is somewhat less abundant. These two birds are called Black Brant by the settlers, who call the White-fronted Goose Brant. They did not seem to know the true Black Brant, *B. nigricans*, nor did I see any.

Branta canadensis minima. Very common during the latter part of April. While at Fort Klamath I examined a large number of this group of Geese. Of *occidentalis* I saw none, although they are doubtless to be found here. *Canadensis* seemed to be typical. Most of the *hutchinsii* and *minima* were well marked, and could be easily identified. The chief variation in the latter was in the white collar, which was sometimes hardly perceptible; the abrupt demarcation between the dark and white in the anal region was very constant and striking.

Olor ———. Swans, probably of both species, are not rare during the migrations, and are often seen on the lake. On February 13, and for two or three days thereafter, flocks were seen flying north up the valley; this was said to be extremely early for their spring flight.

Botaurus lentiginosus. Common in the marsh, where in April and May their 'pumping' is heard on all sides, and where they breed plentifully.

Ardea herodias. Resident, but most common in summer.

Ardea egretta. A few seen in summer. One passed the winter on Wood River.

Ardea virescens. One of these Herons was seen at Crooked Creek May 4.

Nycticorax nycticorax nævius. Breeds abundantly in the marsh.

Grus mexicana. Sandhill Cranes are rather common in spring and autumn, arriving late in March, and several pairs breed in the marsh. They are more common, however, on Klamath Marsh.

Grus canadensis. A female was taken June 10, the dimensions of which were as follows: length from *base* of maxilla, 28.50; tarsus, 6.75; wing, 16.50; tail, 6.00; middle toe, 3.00; bare skin on forehead dark reddish; iris light brown; tarsi and feet black. The bill had been shot off within an inch of its base, and the tongue was distorted; the injury had healed entirely, and the bird was in fair condition, but the ovaries were undeveloped and it would probably not have bred this year. It was first seen in a marshy pool just outside the Fort, and was so small that I did not identify it as a Crane until I had approached it within thirty yards and could distinctly see the bare reddish skin on the forehead. It flew away uttering its characteristic note, but soon came back, and on returning with my gun I had no difficulty in shooting it.

Porzana carolina. Breeds commonly in the marsh. A nest found May 27 was among water grass near the edge of a shallow pool, and was supported by the stalks of the grass; the eggs were raised about six inches above the water, but the foundation of the nest was wet; it was composed entirely of the dead stalks and blades of the grass, and was rudely arched over with growing blades of the same. It contained twelve eggs from which the young would have soon appeared, and which average 1.26 × .88. Another nest containing nine nearly fresh eggs was found June 15; in situation and construction this was like the other.

Fulica americana. Common in the marsh, especially in the deeper parts near the lake. Breeds abundantly.

Phalaropus tricolor. Common during the migrations, a few pairs remaining to breed. On June 22 I watched a pair for some time. The female on my approach flew several hundred yards to meet me, circling around and occasionally uttering the usual cry. The male was flushed, and showed much solicitude when I came near a certain place, where after some search I found the nest, containing broken shells of three eggs from which the young had recently escaped. It was placed in a low tussock of marsh grass, well hidden by the fresh green blades, and composed of dead stalks and blades of the same.

Gallinago delicata. Very abundant in spring and fall; some pass the winter along the edges of the smaller streams, and many remain to breed. Their bleating is heard from the latter part of April till the middle of June, most frequently about sunrise and sunset, but occasionally at all hours of the day and night. A set of four eggs was brought to me on June 3. The nest was placed in a tussock of grass growing in a marshy place near Wood River, and consisted merely of a few blades of grass, both dry and green, forming a shallow depression. The eggs average 1.61 × 1.10, and incubation was considerably advanced.

Totanus solitarius. Specimens taken May 12 and August 16.

Totanus melanoleucus. Two seen April 23, and at intervals for two or three weeks. They return early in August and are rather common.

Symphemia semipalmata. One pair at least bred near the edge of the marsh, but I was unable to find the nest. My search for it seemed to disturb the parents very much, and about the last of June they suddenly disappeared, probably removing their young soon after they were hatched. Wishing to secure the entire family I did not shoot the old birds, which were probably the new *inornata* form.

Bartramia longicauda. A pair seen near the marsh, and the male shot, June 4. A pair with three nearly grown young were seen in the same locality on July 18, and Captain Bendire informs me that he also observed this species at Fort Klamath. The recognized range of the Bartramian Sandpiper is considerably extended by these records.

Actitis macularia. Common summer visitor.

Numenius longirostris. First seen March 28, and common by the middle of April. Breeds, but said to be less common in summer now than formerly.

Ægialitis vocifera. One of the earliest migrants to appear, and breeds abundantly. First heard March 8, and became common three or four days later.

Dendragapus obscurus fuliginosus. Generally distributed among the the pines, but not abundant. Their 'booming' began about the latter part of March and continued until May.

Bonasa umbellus sabini. Common in the valley, especially in aspen groves.

Pediocætes phasianellus columbianus. Not uncommon in the valley, and said to be yearly becoming more abundant.

Zenaidura macroura. Common summer visitor, arriving early in May.

Cathartes aura. Common, first seen late in March and within a week was abundant; breeds commonly.

Circus hudsonius. Common resident.

Accipiter velox. Rare summer visitor.

Accipiter cooperi. A pair seen at Beaver Meadows, July 9.

Accipiter atricapillus striatulus. Frequently seen during the autumn and winter; breeds.

[An adult male, taken March 11, is perfectly typical of the above form.—W. B.]

Buteo borealis calurus. Rather common in summer. Several were shot in and about the Fort where they kill many chickens.

Buteo swainsoni. Several taken in the spring; breeds.

Archibuteo lagopus sancti-johannis. Appeared early in November, and during the winter was very abundant on the marsh. The stomachs usually contained field mice.

Aquila chrysaëtos. A common resident, but hardly as numerous as the next species.

Haliæëtus leucocephalus. Common resident, especially numerous near the lake. All of the nests I found were placed at or near the tops of tall dead pines. One nest near the Agency was built and occupied by Ospreys in 1886, and by a pair of these Eagles in 1887. Three nests examined between June 15 and 20 contained each two young nearly as large as the parents.

Falco peregrinus anatum. Resident and not uncommon.

[A female, shot March 16, 1887, has the top of head slaty brown, about uniform with the back, but Mr. Ridgway, who has examined the specimen, writes me that it is "not nearly dark enough for *F. p. pealei*," and adds, "we possess very much darker specimens from eastern localities."—W. B.]

Falco columbarius. A fine male was shot April 24 while chasing a Sparrow. Early in August many small dark-colored Hawks, probably *suckleyi* were observed along the shores of Diamond Lake, leisurely migrating southward in families of five and six.

[The male above referred to does not in the least approach *suckleyi* but, on the contrary, is rather paler than average eastern specimens of *columbarius*.—W. B.]

Falco sparverius. Common summer visitor, arriving early in April and nesting in Woodpecker holes near the tops of the highest pines.

Pandion haliaëtus carolinensis. Common, especially on Williamson's River.

Asio wilsonianus. Rather common. Their eggs are usually deposited in an old Magpie's nest.

Asio accipitrinus. Common in the marsh in autumn and winter. In one specimen a pellet ready for regurgitation contained ten nearly perfect skulls of a shrew, a species of which, and field mice, were nearly always found in the stomachs.

Nyctala acadica. A male taken in an open shed on February 21. About the middle of April the curious notes of this Owl were frequently heard just outside the Fort.

Megascops asio kennicotti? Heard on several occasions and well known to the settlers, but I was unable to obtain any specimens.

Bubo virginianus subarcticus? Rather common resident. No specimens obtained.

Glaucidium gnoma. Common resident. One captured February 21 had just struck at a Robin and was struggling with it on the ground. It is said to be especially abundant in summer at Modoc Point, and to feed upon a lizard that is common there; I have also found fragments of field mice in the stomachs. Insects, however, and especially grasshoppers, constitute the greater part of its food when they can be obtained; when the Owl is searching for these the smaller birds pay little attention to it, even if it happens to alight near them.

(*To be continued.*)

ADDITIONS TO THE AVIFAUNA OF WASHINGTON AND VICINITY.

BY HUGH M. SMITH AND WILLIAM PALMER.

Since the publication in 1883 of Drs. Coues and Prentiss's annotated list of the birds of the District of Columbia (Avifauna Columbiana — Bull. No. 26, U. S. Nat. Mus.), the number of species therein enumerated has been considerably augmented by the discovery of specimens in the National Museum and in private collections, of the existence of which these authors were apparently ignorant, and by the taking of specimens in more recent years that were, properly speaking, new. In 'Avifauna Columbiana' the names of 248 birds are given. To this number Messrs. Ridgway, Henshaw, and F. S. Webster have each added one species, and the writers six; and we are enabled at this time to cite the occurrence within our limits of twelve additional species and subspecies, and to increase by a species and a subspecies the fauna of the Atlantic slope of the United States.

Urinator lumme. — In the spring of 1882 a Red-throated Loon was caught in a gill-net in the Potamac River, a few miles below Washington, and is now in the possession of Mr. O. N. Bryan, of Marshall Hall, Maryland. This is the only known occurrence of the bird within our limits.

Pelecanus erythorhynchos. — There appear to be three well authenticated instances of the capture of this bird in our vicinity:—(1) near Alexandria, Va., April, 1864, collected by C. Drexler and presented to the Smithsonian Institution (No. 33,701); (2) opposite Washington, on the Virginia bank of the Potomac, fall of 1864, shot by John Ferguson, and seen and identified by several persons who have communicated the facts to us; (3) near Alexandria, Va., October, 1878, killed by John Huxhurst, and seen by a gentleman connected with the National Museum.

Porzana noveboracensis. — In the collection of the National Museum are two Yellow Rails, both of which were taken in the marshes of the Potomac River near Washington; the first (No. 80,297) by T. E. Clark, October 4, 1879, the second (No. 96,617) by A. Skinner, March 28, 1884.

Macrorhamphus scolopaceus. — Seven Long-billed Dowitchers were killed from a flock on the Anacostia River, D. C., in April, 1884, by a gunner who sold them in the market for Jack Snipe. One, similar to the others, was secured and mounted by one of the writers, and has been identified by Mr. Ridgway as the western species.

Ægialitis meloda circumcincta. — On May 3, 1884, a specimen of this species was obtained by A. Skinner on the shore of the Potomac River, opposite Washington, and is now in the National Museum.

Arenaria interpres. — Three Turnstones in the National Museum (Nos. 29,176, 29,177, 29,178) were taken in the District by C. Drexler in 1860 (?).

In June, 1882, Mr. J. A. Moore killed a bird at Jones's Point, Va., near Washington; in May, 1881, Mr. O. N. Bryan secured one and saw another at Marshall Hall, Md.; and we know of the occurrence of three others on the Potomac River, D. C., within the past few years.

Conurus carolinensis.—In September, 1865, while gunning for Sora on the Potomac River, Mr. Edward Derrick fired into a flock of strange birds flying overhead, killing several, which proved to be Carolina Paroquets. He had one mounted, and kept the specimen in his house for a number of years. Other parties on the marsh at the same time shot numbers of the birds. Descriptions furnished by Mr. Derrick and careful questioning by ourselves, leave no doubt as to the identity of the birds.

Contopus borealis. — The claims of this species to a place in our list rest upon Mr. Ridgway's observations near Fall's Church, Va., a few miles from this city, where several birds were noticed in September, 1881. Further west in Virginia the species cannot be considered very rare, individuals having been observed for three or four successive summers by one of the writers; and Dr. A. K. Fisher has taken a specimen in the Bull Run Mountains; these latter occurrences, however, are a considerable distance beyond our faunal limits.

Otocoris alpestris praticola. — Two Horned Larks in the collection of William Palmer have been identified by Mr. Henshaw as belonging to his race *praticola*. They were taken in February, 1881, and were in company with numbers of typical *O. alpestris*.*

Melospiza lincolni.—This Sparrow was added to our faunaby Mr. Henshaw, who collected three specimens in May, 1885 (Coll. H. W. H., Nos. 5621, 5622, 5623). William Palmer has taken two birds; and Mr. Ridgway has noticed the species on several occasions near Laurel, Md.

Dendroica kirtlandi. — A specimen of this bird, now in the National Museum (No. 111,878), was shot by William Palmer, September 25, 1887, on a wooded hilltop near Fort Myer, Va., in the same locality in which the collector had previously taken *Helminthophila leucobronchialis*. The bird was moving slowly about in the underbrush, and was at first thought to be the Yellow Palm Warbler, from the habit of jerking the tail characteristic of that species. Just one week later another bird of the same species was observed in this locality under such circumstances as to make the identification a surety. Kirtland's Warbler is new to the Atlantic slope of the United States, Cleveland, Ohio, we believe, being the easternmost limit of the range of the species hitherto recorded.

Seiurus noveboracensis notabilis. — Grinnell's Water-Thrush, as Mr. Ridgway informs us, has not been previously recorded from east of Illinois. He has, however, identified two specimens taken in Virginia, near Washington, on May 11, 1879, and May 5, 1885 (Coll. W. P., Nos. 620, 1376).

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* On February 16, 1888, some months after these notes were sent to 'The Auk,' eighteen specimens of this variety were taken by William Palmer near Washington from a flock of fifty or sixty birds, that had been noticed in the vicinity throughout the winter. About half a dozen other specimens have recently been obtained by various collectors.

NOTES ON THE SUMMER BIRDS OF HOLDERNESS, BETHLEHEM, AND FRANCONIA, N. H.

BY WALTER FAXON AND J. A. ALLEN.

[The following lists of birds observed in summer by Mr. Faxon form an interesting contribution to our knowledge of the distribution of the birds in the White Mountain region, supplementing in an important way the observations of Messrs. Maynard, Brewster, Minot, and Chadbourne. I have added thereto fragmentary notes made in 1874 in the same general region. My observations in Franconia were made in July, chiefly in the vicinity of Sugar Hill, several hundred feet above Franconia village; those in Bethlehem, in the early part of August.

Holderness, where observations were made by Mr. Faxon, is a few miles from Lake Winnipesaukee. This locality, as the list shows, is "near the border of the Alleghanian and Canadian Avifaunæ, although decidedly Alleghanian in its general character, the few characteristic Canadian birds found there being rare, *e.g.*, White-throated Sparrow, Yellow-rumped Warbler, Black-throated Blue Warbler, Snowbird, etc." (*Faxon*, in letter accompanying his lists). Bethlehem is more decidedly Canadian in its affinities.—J. A. A.]

List of Birds observed near Squam Lake, Holderness, N. H., June 4-12, 1885, and June 4-11, 1886. By Walter Faxon.

1. **Urinator imber.** Loon.—Common.
2. **Actitis macularia.** Spotted Sandpiper.—Common.
3. **Bonasa umbellus.** Ruffed Grouse.—Very common.
4. **Buteo borealis.** Hen Hawk.
5. **Haliæetus leucocephalus.** Bald Eagle.—One individual seen.
6. **Coccyzus erythrophthalmus.** Black-billed Cuckoo. — Common.
7. **Ceryle alcyon.** Kingfisher.—Common.
8. **Dryobates villosus.** Hairy Woodpecker.—Not common.
9. **Ceophlœus pileatus.** Pileated Woodpecker.—Rare. One seen.
10. **Colaptes auratus.** Golden-winged Woodpecker.—Common.
11. **Antrostomus vociferus.** Whip-poor-will.—Abundant.
12. **Chordeiles virginianus.** Nighthawk.—Common.
13. **Chætura pelagica.** Chimney Swift.—Common.
14. **Tyrannus tyrannus.** Kingbird.—Common.
15. **Myiarchus crinitus.** Crested Flycatcher.—Common.

16. Sayornis phœbe. PHŒBE.—Common.

17. Contopus virens. WOOD PEWEE.—Common.

18. Empidonax minimus. LEAST FLYCATCHER.—Common.

19. Cyanocitta cristata. BLUE JAY.—Not common.

20. Corvus americanus. CROW.—Abundant.

21. Dolichonyx oryzivorus. BOBOLINK.—Common.

22. Agelaius phœniceus. RED-WINGED BLACKBIRD.—Common.

23. Icterus galbula. BALTIMORE ORIOLE.—Not common.

24. Carpodacus purpureus. PURPLE FINCH.—Not common.

25. Spinus tristis. GOLDFINCH.—Not common.

26. Poocætes gramineus. BAY-WINGED BUNTING.—Very common.

27. Ammodramus sandwichensis savanna. SAVANNA SPARROW.—Not common.

28. Zonotrichia albicollis. WHITE-THROATED SPARROW.—Rare.

29. Spizella socialis. CHIPPING SPARROW.—Common.

30. Spizella pusilla. FIELD SPARROW.—Very common.

31. Junco hyemalis. SNOWBIRD.—Rare; found on summit of Beech Hill, about 1150 feet above sea level, with fledged young.

32. Melospiza fasciata. SONG SPARROW.—Common.

33. Melospiza georgiana. SWAMP SPARROW.—Rare.

34. Pipilo erythrophthalmus. TOWHEE.—Very common.

35. Habia ludoviciana. ROSE-BREASTED GROSBEAK.—Not common.

36. Passerina cyanea. INDIGO-BIRD.—Very abundant.

37. Piranga erythromelas. SCARLET TANAGER.—Common.

38. Progne subis. PURPLE MARTIN.—Common.

39. Petrochelidon lunifrons. CLIFF SWALLOW.—Common.

40. Chelidon erythrogaster. BARN SWALLOW.—Common.

41. Tachycineta bicolor. WHITE-BELLIED SWALLOW.—Not common.

42. Ampelis cedrorum. CEDAR-BIRD.—Common.

43. Vireo olivaceus. RED-EYED VIREO.—Very common.

44. Vireo gilvus. WARBLING VIREO.—Common near houses.

45. Mniotilta varia. BLACK-AND-WHITE CREEPER.—Common.

46. Helminthophila ruficapilla. NASHVILLE WARBLER.—Very common.

47. Compsothlypis americana. BLUE YELLOW-BACKED WARBLER.—Not common.

48. Dendroica æstiva. SUMMER YELLOW-BIRD.—Not common.

49. Dendroica cærulescens. BLACK-THROATED BLUE WARBLER.—Rare. One seen.

50. Dendroica coronata. YELLOW-RUMPED WARBLER.—Rare. One seen.

51. Dendroica pensylvanica. CHESTNUT-SIDED WARBLER.—Very abundant.

52. Dendroica blackburniæ. BLACKBURNIAN WARBLER.—Rare.

53. Dendroica virens. BLACK-THROATED GREEN WARBLER.—Common.

54. Seiurus aurocapillus. OVEN-BIRD.—Common.

55. Seiurus noveboracensis. WATER-THRUSH.—Not common.

56. **Geothlypis trichas.** MARYLAND YELLOW-THROAT.—Common.
57. **Sylvania canadensis.** CANADIAN WARBLER.—Rare.
58. **Setophaga ruticilla.** REDSTART.—Very abundant.
59. **Galeoscoptes carolinensis.** CATBIRD.—Common.
60. **Harporhynchus rufus.** BROWN THRASHER.—Common.
61. **Parus atricapillus.** CHICKADEE.—Common.
62. **Turdus fuscescens.** VEERY.—Common.
63. **Turdus aonalaschkæ pallasii.** HERMIT THRUSH.—Common.
64. **Merula migratoria.** ROBIN.—Common.
65. **Sialia sialis.** BLUEBIRD.—Common.

List of Birds observed in Franconia, N. H., June 11-21, 1886, and June 4 to August 1, 1887. By Walter Faxon.

1. **Actitis macularia.** SPOTTED SANDPIPER. — Common along the larger streams. Also seen on Echo Lake.
2. **Bonasa umbellus.** RUFFED GROUSE.—Common.
3. **Circus hudsonius.** MARSH HAWK.—Common.
4. **Coccyzus erythrophthalmus.** BLACK-BILLED CUCKOO. — Common.
5. **Ceryle alcyon.** BELTED KINGFISHER.—Rather common.
6. **Dryobates villosus.** HAIRY WOODPECKER.—Rare.
7. **Dryobates pubescens.** DOWNY WOODPECKER.—One specimen seen on Sugar Hill, Lisbon, near the Franconia line.
8. **Picoides arcticus.** ARCTIC THREE-TOED WOODPECKER. — One specimen seen on Mt. Lafayette, June, 1886.
9. **Sphyrapicus varius.** YELLOW-BELLIED WOODPECKER. — Very common. Commonest of the Woodpeckers.
10. **Colaptes auratus.** GOLDEN-WINGED WOODPECKER. —Rather common.
11. **Antrostomus vociferus.** WHIP-POOR-WILL.—Not very common.
12. **Chordeiles virginianus.** NIGHTHAWK.—Not common.
13. **Chætura pelagica.** CHIMNEY SWIFT.—Common.
14. **Trochilus colubris.** RUBY-THROATED HUMMINGBIRD.—But few seen.
15. **Tyrannus tyrannus.** KINGBIRD.—Common.
16. **Myiarchus cristatus.** CRESTED FLYCATCHER.—Rare.
17. **Sayornis phœbe.** PHŒBE.—Common.
18. **Contopus borealis.** OLIVE-SIDED FLYCATCHER.—Rather rare.
19. **Contopus virens.** WOOD PEWEE.—Not common.
20. **Empidonax flaviventris.** YELLOW-BELLIED FLYCATCHER. —Common. Inhabits deep, damp woods in the lower part of the town, and also found on the mountains to the height of 3600 feet.
21. **Empidonax pusillus traillii.** TRAILL'S FLYCATCHER. — Common, especially among the alders along the water courses.
22. **Empidonax minimus.** LEAST FLYCATCHER.—Common.
23. **Cyanocitta cristata.** BLUE JAY.—Common.
24. **Corvus americanus.** AMERICAN CROW.—Common.
25. **Dolichonyx oryzivorus.** BOBOLINK.—Common.
26. **Molothrus ater.** COWBIRD. — One seen by Mr. Bradford Torrey, June, 1887.

Agelaius phœniceus was found at Streeter's Pond in the adjoining town of Lisbon. None were seen in Franconia.

27. **Icterus galbula.** BALTIMORE ORIOLE.—Not common.

28. **Carpodacus purpureus.** PURPLE FINCH.—Common.

29. **Loxia curvirostra minor.** AMERICAN CROSSBILL.—Common.

30. **Loxia leucoptera.** WHITE-WINGED CROSSBILL.—A few seen, June, 1886.

31. **Spinus tristis.** AMERICAN GOLDFINCH.—Common.

32. **Spinus pinus.** PINE SISKIN.—Common in June, 1886.

33. **Poocætes gramineus.** BAY-WINGED SPARROW.—Abundant.

34. **Ammodramus sandwichensis savanna.** SAVANNA SPARROW.—Abundant.

35. **Zonotrichia albicollis.** WHITE-THROATED SPARROW.—Common.

36. **Spizella socialis.** CHIPPING SPARROW.—Common.

37. **Spizella pusilla.** FIELD SPARROW.—Common in dry pastures near the village.

38. **Junco hyemalis.** SNOWBIRD.—Abundant.

39. **Melospiza fasciata.** SONG SPARROW. — Abundant. Found breeding at the Eagle Lakes, Mt. Lafayette.

40. **Melospiza georgiana.** SWAMP SPARROW.—Rare.

41. **Passer domesticus.** HOUSE SPARROW.—One pair nesting in girder of the lowest bridge over the Gale River in the village, 1887. None seen in 1886.

42. **Habia ludoviciana.** ROSE-BREASTED GROSBEAK. — Not very common.

43. **Passerina cyanea.** INDIGO BUNTING.—Abundant.

44. **Piranga erythromelas.** SCARLET TANAGER.—Not very common.

45. **Progne subis.** PURPLE MARTIN. — A flock passed through the village, June 19, 1887. Apparently not breeding in the village.

46. **Petrochelidon lunifrons.** EAVE SWALLOW.—Common.

47. **Chelidon erythrogaster.** BARN SWALLOW.—Common.

48. **Tachycineta bicolor.** WHITE-BELLIED SWALLOW.—Common.

49. **Clivicola riparia.** BANK SWALLOW.—Common.

50. **Ampelis cedrorum.** CEDAR-BIRD.—Abundant.

51. **Vireo olivaceus.** RED-EYED VIREO.—Abundant.

52. **Vireo philadelphicus.** PHILADELPHIA VIREO. — One seen in the village throughout June and July, 1887.

53. **Vireo gilvus.** WARBLING VIREO.—A few in the village elms.

54. **Vireo solitarius.** BLUE-HEADED VIREO.—Not rare in deep woods.

55. **Mniotilta varia.** BLACK-AND-WHITE WARBLER.—Not common.

56. **Helminthophila ruficapilla.** NASHVILLE WARBLER.—Common.

57. **Helminthophila peregrina.** TENNESSEE WARBLER. — Two, June, 1887, in pastures above the Profile House Farm. Evidently nesting in the neighborhood.

58. **Compsothlypis americana.** BLUE YELLOW-BACKED WARBLER.—Common.

59. **Dendroica æstiva.** YELLOW WARBLER.—Rare.

60. **Dendroica cærulescens.** BLACK-THROATED BLUE WARBLER — Common.

61. **Dendroica coronata.** YELLOW-RUMPED WARBLER. — Common, especially at the higher levels.

62. **Dendroica maculosa.** BLACK-AND-YELLOW WARBLER.—Common.

63. **Dendroica pensylvanica.** CHESTNUT-SIDED WARBLER.—Common.

64. **Dendroica castanea.** BAY-BREASTED WARBLER. — Common in deep primitive woods, especially at high levels.

65. **Dendroica striata.** BLACK-POLL WARBLER. — Common in Franconia Notch up to tree limit on Mt. Lafayette. Rare in the lower part of the town.

66. **Dendroica blackburniæ.** BLACKBURNIAN WARBLER.—Common.

67. **Dendroica virens.** BLACK-THROATED GREEN WARBLER. — Common.

68. **Seiurus aurocapillus.** OVEN-BIRD.—Common.

69. **Seiurus noveboracensis.** WATER-THRUSH.—Rather common.

70. **Geothlypis philadelphia.** MOURNING WARBLER. — Two, one near the Profile House, the other near the village.

71. **Geothlypis trichas.** MARYLAND YELLOW-THROAT.—Common.

72. **Silvania canadensis.** CANADIAN WARBLER.—Common, especially at higher levels.

73. **Setophaga ruticilla.** AMERICAN REDSTART.—Common.

74. **Galeoscoptes carolinensis.** CATBIRD.—Common.

75. **Troglodytes hiemalis.** WINTER WREN.—Common.

76. **Certhia familiaris americana.** BROWN CREEPER.—Rare.

77. **Sitta carolinensis.** WHITE-BREASTED NUTHATCH.—Not very common.

78. **Sitta canadensis.** RED-BREASTED NUTHATCH.—Rare.

79. **Parus atricapillus.** CHICKADEE.—Not very common.

80. **Parus hudsonicus.** HUDSONIAN TITMOUSE. — Two seen on Mt. Lafayette, June 12, 1886, 3900 feet above sea.

81. **Regulus satrapa.** GOLDEN-CROWNED KINGLET.—Common in coniferous forest.

82. **Turdus fuscescens.** VEERY.—Very common.

83. **Turdus aliciæ bicknelli.** BICKNELL'S THRUSH.—Common on Mt. Lafayette, about the Eagle Lakes; also heard on Mt. Cannon.

84. **Turdus ustulatus swainsonii.** OLIVE-BACKED THRUSH.—Common at higher levels, and in deep woods about the village.

85. **Turdus aonalaschkæ pallasii.** HERMIT THRUSH.—Common.

86. **Merula migratoria.** AMERICAN ROBIN.—Common.

87. **Sialia sialis.** BLUEBIRD.—Not common.

Notes on Birds observed at Franconia and Bethlehem, N. H., in July and August, 1874. By J. A. Allen.*

1. **Bonasa umbellus.** Common.
2. **Ceryle alcyon.** Common.

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* The species mentioned were seen at both localities, unless stated otherwise.

3. **Dryobates villosus.** Common.

4. **Dryobates pubescens.** Common.

5. **Sphyrapicus varius.** Common.

6. **Colaptes auratus.** But few seen.

7. **Chordeiles popetue.** Common.

8. **Chætura pelagica.** Common.

9. **Trochilus colubris.** Frequently seen.

10. **Tyrannus tyrannus.** Occasionally seen at both Franconia and Bethlehem.

11. **Myiarchus crinitus.** Two seen August 15 and 16, at Bethlehem.

12. **Contopus borealis.** Rather common.

13. **Contopus virens.** Common.

14. **Empidonax pusillus traillii.** Common.

15. **Cyanocitta cristata.** Common.

16. **Corvus americanus.** Abundant.

17. **Dolichonyx oryzivorus.** Abundant.

18. **Agelaius phœniceus.** Seen a few times.

19. **Icterus galbula.** Seen a few times at Bethlehem, Aug. 15 and later.

20. **Carpodacus purpureus.** Common.

21. **Loxia curvirostra minor.** Repeatedly observed at Bethlehem and vicinity.

22. **Spinus tristis.** Common.

23. **Poocætes gramineus.** Abundant.

24. **Ammodramus sandwichensis savanna.** Rather common.

25. **Zonotrichia albicollis.** Abundant at nearly all points above 1000 feet.

26. **Spizella socialis.** Common.

27. **Junco hyemalis.** Common, at least everywhere above 1000 feet.

28. **Melospiza fasciata.** Abundant.

29. **Habia ludoviciana.** Seen once at Bethlehem.

30. **Passerina cyanea.** Rather common.

31. **Petrochelidon lunifrons.** Abundant.

32. **Chelidon erythrogaster.** Abundant.

33. **Clivicola riparia.** Common.

34. **Vireo olivaceus.** Abundant.

35. **Dendroica cærulescens.** Common.

36. **Dendroica æstiva.** Frequent.

37. **Dendroica virens.** Common.

38. **Dendroica coronata.** Occasionally seen.

39. **Dendroica pensylvanica.** Common.

40. **Seiurus aurocapillus.** Common.

41. **Geothlypis trichas.** Common.

42. **Setophaga ruticilla.** Not common.

43. **Galeoscoptes carolinensis.** A few seen in the valley of the Ammonoosuc at Bethlehem, and a few on Gale River, in and near Franconia village, but none at higher elevations, and only a few in all.—*Harporhynchus rufus* was not noted.

44. **Troglodytes hiemalis.** Frequent about Franconia.
45. **Troglodytes aëdon.** Seen a few times at Franconia.
46. **Parus atricapillus.** Common.
47. **Turdus fuscescens.** Seen a few times near Franconia village.
48. **Turdus aonalaschkæ pallasii.** Common.
49. **Merula migratoria.** Rather common.
50. **Sialia sialis.** Occasionally seen; not common.

THE BIRDS OF THE WEST INDIES, INCLUDING THE BAHAMA ISLANDS, THE GREATER AND THE LESSER ANTILLES, EXCEPTING THE ISLANDS OF TOBAGO AND TRINIDAD.

BY CHARLES B. CORY.

[*Concluded from p. 82.*]

FAMILY PODICIPIDÆ.

GENUS **Podiceps** LATH.

Podiceps LATHAM, Ind. Orn. II, p. 780, 1790.

Podiceps dominicus (LINN.).

Colymbus dominicus LINN. Syst. Nat. I, p. 223 (1766).—GUNDL. J. f. O. 1856, p. 430 (Cuba).

Colymbus dominicensis D'ORB. in La Sagra's Hist. Nat. Cuba, Ois. p. 282 (1840).

Podiceps dominicus GOSSE, Bds. Jam. p. 440 (1847).—SALLÉ, P. Z. S. 1857, p. 237 (San Domingo).—SCL. P. Z. S. 1861, p. 82 (Jamaica).—MARCH, Pr. Acad. Nat. Sci. Phila. 1864, p. 70 (Jamaica).—GUNDL. Repert. Fisico-Nat. Cuba, I, p. 386 (1866).—BRYANT, Pr. Bost. Soc. Nat. Hist. XI, p. 97 (1867) (San Domingo).—GUNDL. J. f. O. 1875, p. 365 (Cuba); *ib.* Anal. Soc. Esp. Hist. Nat. VII, p. 395 (1878) (Porto Rico).—CORY, Bds. Bahama I. p. 222 (1880).—A. & E. NEWTON, Handb. Jamaica, p. 117 (1881).—CORY, Bds. Haiti & San Domingo, p. 185 (1885); *ib.* List Bds. W. I. p. 34 (1885).

Sylbeocyclus dominicus BREWER, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).

Podilymbus dominicus TAYLOR, Ibis, 1864, p. 172 (Porto Rico).

Winter Plumage, *Male :* — Above dark brown with slight greenish reflections; sides of the head and throat ashy gray, continuous in a broad band around the neck; underparts silky white, mottled with dusky; outer primaries showing chocolate-brown, the others and secondaries white.

Length, 9.35; wing, 3.60; tarsus, 1.24; bill, .85.

Habitat. Bahamas and Greater Antilles.

Colymbus holboellii (Reinh.) is included by Mr. Wells in his list of the birds of Grenada (*Podiceps holbolli?* Wells, List of the Birds of Grenada, p. 12, 1886) but is probably some other species wrongly identified.

Genus **Podilymbus** Less.

Podilymbus Lesson, Traité d'Orn. I, p. 595 (1831).

Podilymbus podiceps (Linn.).

Colymbus podiceps Linn. Syst. Nat. I, p. 223 (1766). — Sundev. Oefv. K. Vet. Acad. För. 1869, p. 603 (Porto Rico).

Colymbus carolinensis D'Orb. in La Sagra's Hist. Nat. Cuba, Ois. p. 285 (1840).

Podilymbus carolinensis Gosse, Bds. Jam. p. 438 (1847).

Sylbeocyclus carolinensis Gundl. J. f. O. 1856, p. 431 (Cuba).—Brewer, Pr. Bost. Soc. Nat. Hist. VII, p. 308 (1860) (Cuba).

Podilymbus podiceps Scl. P. Z. S. 1861, p. 82 (Jamaica).—March, Pr. Acad. Nat. Sci. Phila. 1864, p. 70 (Jamaica). — Gundl. Repert. Fisico-Nat. Cuba, I, p. 386 (1866); *ib.* J. f. O. 1875 p. 367 (Cuba). Lawr. Pr. U. S. Nat. Mus. I, p. 488 (1878) (St. Vincent and Grenada); *ib.* p. 242 (Barbuda).—Gundl. Anal. Soc. Esp. Hist. Nat. VII, p. 397 (1878) (Porto Rico).—Scl. P. Z. S. 1879, p. 765 (Montserrat).—A. & E. Newton, Handb. Jamaica, p. 117 (1881).—Cory, List Bds. W. I. p. 34 (1885). — Wells, List Bds. Grenada, p. 12 (1886).

Numerous West Indian records.

APPENDIX.

Since this paper was written the following species and subspecies have been added to the West Indian Avi-fauna.

Mimocichla ravida Cory. Grand Cayman.
Cory, Auk, III, p. 499, 1886.

Margarops montanus albiventris (LAWR.). Grenada.
LAWR. Ann. N. Y. Acad. Sci. IV, p. 23, 1887.

Margarops montanus rufus CORY. Dominica.
CORY, Auk, V, p. 47, 1888.

Rhamphocinclus sanctæ-luciæ CORY. St. Lucia.
CORY, Auk IV, p. 97, 1887.

Polioptila cærulea cæsiogaster RIDGW. Bahamas.
RIDGW. Man. N. A. Bds. p. 569, 1887.

Thryothorus guadeloupensis CORY. Grand Terre, Guadeloupe.
CORY, Auk, III, p. 381, 1886.

Dendroica vitellina CORY. Grand Cayman.
CORY, Auk, III, p. 497, 1886.

Geothlypis coryi RIDGW. Eleuthera Island.
RIDGW. Auk, III, p. 334, 1886.

Geothlypis tanneri RIDGW. Abaco, Bahamas.
RIDGW. Auk, III, p. 335, 1886.

Certhiola sharpei CORY. Grand Cayman.
CORY, Auk, III, p. 497, 1886.

Vireo alleni CORY. Grand Cayman.
CORY, Auk, III, p. 500, 1886.

Vireo caymanensis CORY. Grand Cayman.
CORY, Auk, IV, p. 6, 1887.

Vireo crassirostris flavescens RIDGW. Bahamas.
RIDGW. Man. N. A. Bds. p. 476, 1887.

Calliste cucullata SWAINS. Grenada.

Spindalis salvini CORY. Grand Cayman.
CORY, Auk, III, p. 499, 1886.

Spindalis zena townsendi RIDGW. Abaco I., Bahamas.
RIDGW. Proc. U. S. Nat. Mus. Vol. X, p. 3, 1887.

Loxigilla barbadensis Cory. Barbadoes.
Cory, Auk, III, p. 382, 1886.

Loxigilla richardsoni Cory. St. Lucia.
Cory, Auk, III, p. 282, 1886.

Volatina jacarina (Linn.). Grenada.
Wells, List Bds. Grenada, p. 3, 1886.

Spermophila gutturalis Licht. Grenada.
Wells, List Bds. Grenada, p. 3, 1886.

Icterus bairdi Cory. Grand Cayman.
Cory, Auk, III, p. 500, 1886.

Quiscalus caymanensis Cory. Grand Cayman.
Cory, Auk, III, p. 499, 1886.

Elainea barbadensis Cory. Barbadoes.
Cory, Auk, V, p. 47, 1888.

Elainea pagana (Licht.). Grenada.

Myiarchus denigratus Cory. Grand Cayman.
Cory, Auk, III, p. 500, 1886.

Blacicus flaviventris Lawr. Grenada.
Lawr. Proc. U. S. Nat. Mus. IX, p. 617, 1887.

Blacicus martinicensis Cory. Martinique.
Cory, Auk, III, p. 96, 1886.

Milvulus tyrannus (Linn.). Grenada.
Wells, List Bds. Grenada, 1887.

Chætura cinereiventris Sclater. Grenada.
Wells, List Bds. Grenada, p. 4, (1886).

Chætura brachyura (Jardine). St. Vincent and Grenada.
Chætura poliura Cory, Ibis, p. 473, 1886.

Centurus caymanensis Cory. Grand Cayman.
Cory, Auk, III, p. 499, 1886.

Centurus nyeanus Ridgw. Wattlings I., Bahamas.
Ridgw. Auk, III, p. 336, 1886.

Centurus blakei Ridgw. Abaco, Bahamas.
Ridgw. Auk, III, p. 337, 1886.

Colaptes gundlachi Cory. Grand Cayman.
Cory, Auk, III, p. 498, 1887.

Coccyzus maynardi Ridgw. Bahama Islands.
Ridgw. Man. N. A. Bds. p. 274, 1887.

Chrysotis caymanensis Cory. Grand Cayman.
Cory, Auk, III, p. 502, 1886.

ON THE AVI-FAUNA OF PINAL COUNTY, WITH REMARKS ON SOME BIRDS OF PIMA AND GILA COUNTIES, ARIZONA.

BY W. E. D. SCOTT.

With annotations by J. A. Allen.

(*Concluded from p. 36.*)

217. **Anthus pensilvanicus.** American Pipit. — A not uncommon migrant throughout the region and some probably winter on the plains about Tucson and south of that point. I have records of their occurrence in the Santa Catalina Range, altitude 5000 feet, in October and early November, and in March. It was common in flocks on the San Pedro River in March, 1885, at the mouth of Pepper Sauce Cañon.

[Of the four specimens sent, three are in adult spring plumage. One has the dusky streaks on the breast unusually broad and dark. — J. A. A.]

218. **Oroscoptes montanus.** Sage Thrasher.—A common fall migrant in the Pinal Mountains; common migrant and winter resident in small numbers on the foothills of the Catalinas up to 3500 feet. My records of its occurrence are December, rare; January, rather common; February, common; March, abundant. In April they begin to leave, and I did not observe any during the other months of the year.

219. **Mimus polyglottos.** Mockingbird.—A common resident throughout the region up to an altitude of 5000 feet, but more abundant during the

spring migration and in the summer season. In the Catalina Range they are abundant at all times, save in midwinter, up to the altitude indicated, and breed in numbers, raising three broods of three to five young each, during the spring and early summer months. The first brood is hatched by late April or early May, and the final brood late in July or the first week in August.

In this connection some experience that I had with young of this species may be of interest. About May 20, 1885, I captured a young Mockingbird which could fly short distances pretty well. It was probably four weeks old. It soon became accustomed to the cage, which was a large one, and ate readily from the hand or from the feed cups. By the time it had become fully tamed, about ten days or two weeks after it was captured, two other young birds were obtained from a nest. They were pretty well feathered, but the tails and wings were not at all grown, and the little fellows knew nothing about feeding themselves. By this time the bird first captured was fully feathered and grown, being very like an old bird in everything save some details of plumage. The younger birds were put in the same cage with the one first captured. I fed the birds largely on grasshoppers, which were very abundant. From the time that the younger birds entered the cage, they opened their mouths very wide, and made a twittering sound whenever the older birds seized on one of the insects to kill and eat it. After the first twenty-four hours, the elder bird seemed to realize that certain duties devolved upon it, and began to feed and care for the younger birds with the solicitude of a parent. This was continued for a couple of weeks, when the small birds had learned to feed themselves. May not this be considered as either an instance of considerable mental capacity, or a strongly inherited parental instinct?

[Mr. Scott's series of seven adult birds are very much lighter above than specimens from the Atlantic States, with generally more white on the tail feathers, and always much more white on the wings, the white area on the inner primaries being one-fourth to one-third greater than in Florida and South Carolina birds. The white wing-bars are broader, the secondaries are much more broadly tipped with white, and the white is much purer; the primaries are *all*, in some specimens, narrowly tipped with pure white—a feature absent in the eastern bird—and the outer edge of all the remiges and greater coverts is more broadly bordered with a much lighter shade of gray. The throat is white, and the lower parts generally are of a much lighter shade. The white of the tail is a clearer, more snowy white —not silvery or grayish white, as is usually the case in eastern birds; the fourth feather often has a blotch of white at the end. The gray of the upper parts is very much lighter in the Arizona birds, this difference being a striking feature. In size and proportions there seems to be no tangible difference, the tail being not disproportionately longer in the western bird. This form is therefore not identical with the bird from Lower California Professor Baird at one time proposed to call *Mimus caudatus*, although this name has been used to designate the Mockingbird as found in Arizona (*Coues*) and Colorado (*Ridgway*).

Mr. Sennett's specimens from Texas agree very closely in general features with the Scott birds from Arizona.—J. A. A.]

220. **Harporhynchus bendirei.** BENDIRE'S THRASHER.—On the plains about Tucson and to the southward, this species is resident, but even here there seems to be a very considerable migration, as the birds are much more common in the spring and during the breeding season than during the late fall and winter months.

I also observed the birds to be quite common in the vicinity of Florence during the warmer months.

In the foothills of the Catalinas the birds were not resident but were present for about eight months of the year, and were quite common during the breeding season, though they did not range above 4000 feet. Here they arrive early in March, the 7th of that month being the earliest record made, and begin mating and nesting almost at once. The earliest nests with eggs that I recorded was on March 28, and the eggs were partly incubated. On the 20th of May there were many young birds fully grown, and some of the parent birds were nesting a second time. The young birds, as soon as they are fully grown, begin to congregate in companies, often being associated with one or two *H. curvirostris palmeri* and *H. crissalis*. I have seen forty or fifty young Thrashers, mostly *bendirei*, together in such a flock in late May and early June. At such times the birds seek a somewhat higher altitude, as high as five thousand feet, and affect thickets of low oaks and juniper.

The old birds are at all times shy and wary and difficult to approach, even when nesting. The song of the male is particularly beautiful, and is to be compared with the best efforts of the Mockingbird.

The period of song seems to begin very early in the season with all three species of Thrashers that I have observed here. *H. crissalis* is frequently to be heard in late December in the Catalinas, and in January they are in full song, while *palmeri* is in song late in January, and *bendirei* is in full song on its arrival.

221. **Harporhynchus curvirostris palmeri.** PALMER'S THRASHER.—Wherever the cholla, a kind of very prickly and repellant cactus, is found in this region, there one is almost sure to find these Thrashers. They are common residents but do not, so far as I am aware, range much above 3000 feet in altitude on the sides of the mountain ranges. I found them in the Catalinas, at about this altitude, the year round, though they were not quite as abundant in winter as at other times. Here they begin to nest early in March, and by the middle of the month are breeding generally. Three eggs is the usual number in a clutch, though I have found four on rare occasions, and two not infrequently form the set. Rarely only one egg is laid. Two broods are generally raised here. These birds do not sing nearly as much after nesting has begun as they do for the six weeks preceding the laying of the first set of eggs. Near Tucson the breeding season begins fully a month earlier than on the San Pedro slope of the Santa Catalinas.

222. **Harporhynchus crissalis.** CRISSAL THRASHER.—This species is

apparently a resident, though not so abundant as either of the last, throughout the region. In the Catalinas I found it ranging up as high as five thousand feet, and in the Pinals, though not so common as in the Catalinas, it had about the same distribution. It is not nearly so pronounced a cactus species as either of the others, but seems to be equally if not more at home on the rough hill-sides where there is a low dense growth of a kind of juniper and some mesquite.

They breed about the same time as Bendire's Thrasher, or perhaps a little earlier, as I found eggs in the Catalinas during the first week in April that were about ready to be hatched, and have taken young fully fledged as early as May 1. In the fall I have noticed the species feeding on juniper berries and other small fruits.

223. **Campylorhynchus brunneicapillus.** CACTUS WREN.—Throughout the region this is a common resident species, breeding in numbers and raising at least two and sometimes three broods. They are seldom found above 4000 feet on the foothills of the several mountain chains traversing the Territory. While seeming to prefer the cholla cactus country, especially during the breeding time, yet I have found their nests commonly in cat-claw and thick mesquite bushes. The first eggs are laid in the Catalina region as early as March 20, and the broods vary from three to five in number.

224. **Salpinctes obsoletus.** ROCK WREN.—The Rock Wren is a more or less abundant species in the several counties here considered, but is not nearly so common during the winter as at other times of the year. In the mountains it ranges occasionally up to at least 8500 feet, though it is perhaps most abundant between 3000 and 5000 feet. They begin to breed in the Catalinas about the middle of March, and are in song by the last of January. Six or eight young are the common inmates of a nest. Two broods are raised. The nest is on the ground in some hole, or more frequently under a rock.

225. **Catherpes mexicanus conspersus.** CAÑON WREN—The rocky cañons of the mountains in the region under consideration are the home of this species, which, so far as I am aware, is resident up to at least 5000 feet the year round. In the summer this range is extended to the higher altitudes. (See Auk, Vol. II, No. 4, p. 350, October, 1885.) The species is not a very common one, it being rather unusual to see more than a pair in the same neighborhood, but wherever they occur, and at every season of the year, particularly in the early spring, the birds are very conspicuous by their song, spoken of in the above reference.

Their nesting methods are very different from those of the species just considered. In the Catalinas I took in all half a dozen nests that were built much like the nest of the Phœbe (*Sayornis phœbe*), the same thick, heavy walls, rather soft and covered with green moss on the outside characterizing the structure, and the inside cavity not so broad or shallow as in the case of the Phœbe. The nest is generally placed in some deserted tunnel or cave, and at times in unused buildings. It is found more frequently on some projecting ledge or shelf, and rarely in some cranny or hole that will scarcely permit the old birds to enter. The eggs are from four to six in number, and three broods are generally reared each season.

226. **Thryothorus bewickii murinus.** BAIRD'S WREN.—This species was obtained in the Catalinas and also in the Pinal Mountains, at both of which localities it appears to be resident, ranging up to about six thousand feet, and apparently preferring the evergreen oak region.

The only nests that I have found have been built in natural hollows or deserted Woodpeckers holes in live oak trees.

I noticed the species on the San Pedro River in winter, and Mr. Brown has found it not uncommon about Tucson during the colder portion of the year.

[Fifteen specimens from Arizona represent the extreme grayish form of this subspecies, differing as much in the general color of the upper parts from a similar series from Southern Texas in Mr. Sennett's collection as do the Arizona Mockingbirds from the Mockingbirds of the Atlantic States. —J. A. A.]

227. **Troglodytes aëdon parkmanii?** PARKMAN'S WREN.—It is apparent that two forms of House Wren occur in this region. That which I take to be the true *parkmanii* is migratory and not nearly as common as the form that I described in this journal (Vol. II, p. 351), under the name of *T. aëdon marianæ.* The only example of the form known as the *parkmanii* is catalogued as No. 1075, ♂, 8th October, 1885, and was taken near my house in the Catalinas, and several specimens of House Wren taken by Mr. Herbert Brown near Tucson in the fall and winter months.

228. **Troglodytes aëdon marianæ?** MARIAN'S WREN.—The other House Wrens that were obtained I must again refer to a form undescribed until published in this journal, as above.

They were all obtained in the Catalinas, and with a few exceptions in the pine forest region, where they were breeding and quite abundant in April, 1885. The birds are migrants and summer residents in the pine forests of the Santa Catalinas above 10,000 feet.

'[In Mr. Scott's series of thirteen specimens are two only in fall plumage, namely, No. 773, ♂, Catalina Mill, Sept. 1, 1884, and No. 1075, ♂, same locality, Oct. 8, 1884. These look quite different from the others, which were taken in April (Apr. 19-24, 1885), in the "pine region" of the Santa Catalina Mountains, at the beginning of the breeding season. In the light of much material additional to that examined when I penned my note endorsing Mr. Scott's *T. aëdon marianæ* (Auk, Vol. II, p. 351, footnote), I am now compelled to consider the differences noticed by Mr. Scott as mainly seasonal, and the entire series of specimens as referable to the form which has for many years been called '*parkmanii.*' The *marianæ* series, however, is pretty uniformly and appreciably lighter in color than the average of specimens from the middle region of the continent, representing apparently the extreme degree of pallor of the pale interior race.

Finding it desirable to again review the subject in the present connection, I have been at the trouble to bring together a large amount of material (about 120 specimens), Mr. Ridgway having kindly sent me for examination the '*parkmanii*' series (over 50 specimens) in the National Museum. Unfortunately, however, the moist Northwest Coast region is poorly represented in the series. But the material at hand seems to indicate that three forms may be fairly well distinguished, as follows:

1. **T. aëdon.** The eastern form (*aëdon* proper) is apparently restricted mainly to the Atlantic coast region, from Northern New England to Florida. It is characterized by the dark heavy tone of its colors, the brown of the dorsal region being dull umber brown, strongest or most ferrugineous on the lower back and rump; back usually with faint darker bars, sometimes strongly developed, occasionally obsolete.

2. **T. aëdon parkmanii.** The true *parkmanii* is a Northwest Coast form, typically represented in the coast region of Oregon and Washington Territory, and less typically southward along the coast to Lower California. Differs from true *aëdon* principally in the lighter or more tawny brown of the upper parts. Light Atlantic coast birds are not certainly distinguishable from dark Pacific coast birds, though separated by not only the whole breadth of the continent, but by a paler, easily recognized form occupying the intermediate region.

Audubon's "single specimen" of his "*Troglodytes Parkmanii*" was sent to him "by Dr. Townsend, who procured it on the Columbia River" (Orn. Biog. V, 1839, p. 310). This specimen, still extant in the National Museum, is now before me. It is No. 66,644, and bears what appears to be the original label, probably in Dr. Townsend's hand-writing. It reads (literally transcribed) as follows: "Troglodytes Americana (Aud.)-Wood Wren-(Audubon Biogr. Vol. II, pag. 452. Plate CLXXIX. Male, Columbia River, June, 1835." On the accompanying National Museum label is written "Type of *Troglodytes parkmanii*, Aud. 'Columbia River,' J. K. Townsend." It is practically identical in coloration with Fort Steilacoom specimens (Nos. 7135-7137), and others from Northern California.

3. **T. aëdon aztecus.** Lighter (more ashy) and paler throughout than even true *parkmanii*, the brown of the upper parts especially being lighter, and the anterior half of the dorsal surface decidedly ashy instead of brown, contrasting strongly with the rest of the dorsal surface. Dark and light barring of the back rather stronger and more constant than in either of the other two forms. Rather smaller, with smaller bill. Reaches its extreme phase of pale colors and small size in Arizona and the Rio Grande border of Texas. Its habitat may include, however, the whole arid interior. The specimens from the Mississippi and Ohio Valleys are also referable to it rather than to *aëdon* proper.

The small, pale Arizona and Rio Grande birds seem to correspond exactly with Baird's var. *aztecus* (Rev. Am. Bds., 1864, p. 139), from Eastern Mexico, which has been of late commonly referred to '*parkmanii*.'

At all localities there is a wide range of individual variation, particularly in general size, and in the size of the bill; also more or less in coloration, especially in the barring of the plumage, both above and below. Young and autumnal birds are also browner and darker than birds taken in the breeding season. This somewhat masks the variation characteristic of particular localities. Florida specimens of the eastern form are, however, in the average, smaller and darker than specimens from Pennsylvania and New York. Southern specimens of the Pacific coast form are smaller and *lighter*, with smaller bill, than specimens from the coast region of Oregon and Washington Territory. Yet one of the Fort Steilacoom specimens (a 'bird of the year') has as small a bill as any in the series. The Arizona birds are especially characterized, as a series (15 specimens), by small size, a very small bill, and excessively pale colors, with the anterior half of the dorsal surface decidedly ashy. They can be very closely matched, however, by specimens from Nueces and Presidio Counties, Texas, and by occasional specimens from Colorado and Nebraska. Mr. Sennett's specimens from the Rio Grande Valley, Texas, though averaging larger than Arizona specimens, more closely resemble them than do any similar series from elsewhere. Mississippi Valley specimens show less ashy on the anterior dorsal surface than is seen in the Lower Texas and Arizona birds.

The distinctness of the barring, both above and below, varies in all the forms, being sometimes strongly developed and sometimes obsolete in specimens from the same locality. As already said, it is rather more pronounced and constant in the *aztecus* form than in the others. Though the barring is perhaps least marked in the Atlantic coast form, the most strongly barred specimen in the whole series is from Long Island, N. Y. —J. A. A.]

229. **Cistothorus palustris.** LONG-BILLED MARSH WREN. — Obtained by Mr. Herbert Brown near Tucson, where I have also noted it on one occasion in the early springtime.

[Doubtless var. *paludicola*.—J. A. A.]

230. **Certhia familiaris mexicana.** MEXICAN CREEPER. — The only notes made on this species are based on a specimen taken in the pine forests of the Catalinas, April 23, 1885. For further details see Auk, Vol. II, No. 4, p. 350, October, 1885.

231. **Sitta carolinensis aculeata.** SLENDER-BILLED NUTHATCH.—This Nuthatch is a common resident in the pine woods and higher altitudes, and a migrant throughout the district. Mr. Brown regards it as rare immediately about Tucson.

It was a rather common migrant in fall, and winter resident in small numbers in the region about my house in the Catalinas. In spring I rarely saw it here. For reference to its occurrence in the pine woods of this main range see Auk, Vol. II, pp. 172 and 349.

232. **Sitta canadensis.** RED-BREASTED NUTHATCH.—The only record made of the occurrence of this species is a female (No. 2819) taken near my house, Santa Catalina Mountains, altitude 4500 feet, 29th October, 1885. This, so far as I am aware, is the second record of the capture of the species in Arizona Territory, where it is apparently rare.

233. **Sitta pygmæa.** PYGMY NUTHATCH. — This species was only noticed in the pine forests of the Pinal and Santa Catalina Mountains, at each of which points it is resident. For further account of the species in the Catalinas see this journal, Vol. II, pp. 172 and 350.

234. **Parus wollweberi.** BRIDLED TITMOUSE.—This Titmouse I found to be a rather common resident in the evergreen oak region of both the Pinal and Santa Catalina Mountains. For an account of its breeding habits see my paper 'On the Breeding Habits of Some Arizona Birds' (Auk, Vol. III, No. 1, Jan., 1886, pp. 84-86; see also Vol. II, No. 4, p. 349, Oct. 1885).

235. **Psaltriparus plumbeus.** LEAD-COLORED BUSH-TIT.—This species is resident in the Catalinas up to at least 7500 feet, but is most abundant in the fall months, congregating often in flocks of from twenty-five to a hundred individuals.

I found a nest that had just been completed near my house late in May, 1885, but the old birds, becoming alarmed, deserted their home and no eggs were laid. The only other point where I have met with this bird is in the Pinal Mountains, near Mineral Creek, where it was also resident.

236. **Auriparus flaviceps.** VERDIN.—Noted throughout the entire region up to an altitude of 4000 feet; resident and breeding wherever it occurred. In the Catalina range, altitude 3500 feet, I found a nest with fresh eggs May 20, 1885, and at Riverside, at a considerable lower elevation, I found the birds breeding late in April.

The particular cover most affected by the birds is dense growths of mesquite and cat-claw, and the nests are placed so as to be best protected by the thorns of such trees and bushes.

237. **Regulus calendula.** RUBY-CROWNED KINGLET. — In the Santa Catalinas, in the evergreen oak belt, this species is a common migrant and winter resident, arriving in fall about the last week in September and being thus very common. Some winters, and in the spring, the numbers are again largely augmented, being most abundant about March 1 to 10, and remaining till the first week in April. I have also observed the species about Tucson and in the valley of the San Pedro River in winter and early spring.

238. **Polioptila cærulea.** BLUE-GRAY GNATCATCHER.—The Blue-gray Gnatcatcher is present in some parts of the region during the entire year, but is not found in winter much above the altitude of the great plains and mesas — about 2000 to 2300 feet. It breeds commonly in the Santa Catalinas, and even at high altitudes. (See Auk, Vol. II, No. 4, p. 349, October, 1885.)

239. **Polioptila plumbea.** PLUMBEOUS GNATCATCHER. — This Gnatcatcher is a common resident species about Tucson and in the valley of the San Pedro River. It ranges during the entire year up to an altitude of about 4000 feet, in the foothills of the Santa Catalinas, where I have found it more abundant than at any other point visited by me.

A large series collected here very clearly shows the transition from the lead-colored to the fully black-capped phase of plumage. This latter phase of plumage is that of the male birds only, and is assumed for about three months in the year. It begins to be apparent about the middle of February, but the full black cap and tail is attained slowly, the first seen in this condition being taken March 10. During the succeeding three months this plumage is retained and in July another moult makes all the birds gray or lead-colored again. Though so common a form I was unable to find nests, but have taken young fully fledged during the first week in June.

240. **Myadestes townsendii.** TOWNSEND'S SOLITAIRE.—My notes on this species are from Mineral Creek, in the Pinal Mountains, where it was not uncommon during late October and part of November, 1882. In the Santa Catalinas it was rather a rare species in spring, fall, and winter, and I did not observe it during the warmer portion of the year. I also observed it as a rare species in the pine forests of the Catalinas from November 3 to 8, 1885.

241. **Turdus fuscescens salicicolus.** WILLOW THRUSH. A single specimen (female) was taken by Mr. Herbert Brown at Tucson, early in May, 1882. No others have come under my notice. The specimen is now in my collection (No. 4073).

242. **Turdus aonalaschkæ.** DWARF HERMIT THRUSH.—A common winter resident in the Catalina region, altitude 4500 feet. The earliest record is October 27, and the latest March 14. Mr. Brown has taken it about Tucson in January.

243. **Turdus aonalaschkæ auduboni.** AUDUBON'S HERMIT THRUSH.—Not common. Probably the resident form, although the only specimens taken were obtained in spring, as follows: No. 2022, ♂, March 30, 1885; No. 2234, ♀, April 22, 1885; No. 2350, ♀, April 30, 1886.

[In a series of over 30 specimens of Hermit Thrushes in the Scott Collection only three are referable to var. *auduboni*. The others are all strictly referable to *aonalaschkæ*.—J. A. A.

244. **Merula migratoria propinqua.** WESTERN ROBIN.—This form of the Robin I found to be a regular fall, winter, and early spring resident in the Catalinas, altitude 3500 to 6000 feet. They arrive here in the fall about November 1, and are soon quite common in small flocks or companies. All through the winter they are more or less common, but towards spring their numbers seem to be very considerably increased, and they are quite common until late in March, and are to be seen sparingly during the first week in April. I have frequently heard the males beginning to sing before they left this point, and on one occasion a single Robin was noted May 5, 1885.

I have observed the species in the pine forests of the Catalinas in November, and on the San Pedro River in January. They are, though regular visitors, much more abundant some seasons than others, and were especially common during the winter of 1885-86.

245. **Sialia mexicana.** WESTERN BLUEBIRD.—A common migrant on the foothills of the mountain ranges, where it is a winter resident. The lowest altitude where I have met them is on the San Pedro River, in January, 1886. They also breed in small numbers in the Catalinas, as I took a young bird of this species on July 4, 1884, altitude 5000 feet. (Also see Auk, Vol. II, No. 4, p. 349, Oct. 1885.) In the same locality the birds appear in flocks about the middle of October and remain until the last of March.

246. **Sialia arctica.** MOUNTAIN BLUEBIRD.—An irregular visitor in fall and winter in the foothills of the Catalinas, which is the only point where I have observed them. In the winter of 1885-86 they were abundant in large flocks, feeding on the seeds of the mistletoe and the hackberry tree. This was the only season when they were present in numbers, and the only other reference in my notes to the species is in the same locality on December 15, 1884, when a flock of fifteen birds were noted, and were all that were seen.

A DESCRIPTION OF AN APPARENTLY NEW SPECIES OF *TROCHILUS* FROM CALIFORNIA.

BY J. AMORY JEFFRIES.

Trochilus violajugulum, sp. nov.

SP. CHAR. (♂ *ad.* Type No. 1616 of my collection). Upperparts metallic green and gold becoming dull on the forehead; gorget violet with a tendency to steel blue at the feather tips; chin and line between gorget and eyes dull; a dull gray belt across breast behind gorget. Sides dull metallic green; flanks less green, the feathers being tipped with brown; ventral median line dullish. Wings dark with an obscure purple glow; an imbricated buff line along the anterior edge of the manus; coverts dull metallic green. Primaries broad to tip, that of the first curved back, graduated in length from first to last. Tail slightly forked; feathers broad, except the last pair, which are abruptly narrow and linear; shafts of the outer pair forming, at the junction of the first and second third, an abrupt angle of 25°. Middle feathers and base of second pair metallic green; rest dark with a distinct purple hue. Under tail-coverts white with metallic green central spots.

Length about 3.60; wing, 1.82; tail, 1.18; bill about .75.

Habitat. Santa Barbara, Cal.

This specimen was shot April 5, 1883, in a bushy field at the base of the flower belt, well up the foothills. The distal end of the upper mandible was shot away.

The bird is roughly like a *T. anna* without a crown patch or ruff, and with violet for sapphire. The tail is of the same type as in *T. anna*, but smaller, and the angle spoken of is less than 25° instead of 33°, so that in the closed tail the outer pair of feathers overlap instead of crossing as in *T. anna*. This peculiar angle of the shaft in *T. anna* is not mentioned in the description nor shown in the cuts of the tail, being concealed by the coverts. It seems to be peculiar to my specimen and the Anna Hummingbird.

From *T. alexandri* it is distinguished by its larger size, broad primaries, and all the peculiarities of the tail.

As but one specimen was procured, it might be a hybrid possibly between *T. alexandri* and *T. lucifer*, but this is highly improbable, as it lacks the ruff and crown patch of one, and has a different wing and tail from either. It is more of a step between *T. alexandri* and *anna*, but it lacks the crown patch and ruff of the latter, and the gorget is violet; from *alexandri* the differences have already been pointed out. The primaries are broader than in either.

In short, it seems to be a perfectly distinct species, standing between *T. anna* and *T. alexandri.*

I have named it *violajugulum*, from *viola*, violet, and *jugulum*, the throat.

I am indebted to Mr. Ridgway for kindly comparing my specimen with the Washington collection.

BIRD NOTES FROM LONG ISLAND, N. Y.*

BY WILLIAM DUTCHER.

CONCENTRATION of effort, whether applied to business pursuits or the study of zoölogy, is the surest road to success. It was, therefore, with this idea in view, that I decided many years since to confine my ornithological studies and collecting to a limited area. Having a natural bent toward the seashore and water-fowl I saw, presented in Long Island, a field that could not be equalled for diversity of topography and definiteness of surroundings. Situated as it is on the debatable line between the Alleghanian and Carolinian Faunæ, it is like the territory between two contending armies, subject to incursions from both parties. Stragglers from the icy north visit its shores that shortly before have been visited by wanderers from the tropics. Upland and marsh and sea attract a numerous and diversified avifauna, larger probably than can be found in any territory of equal size on the continent.

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* Read before the Linnæan Society of New York, March 8, 1888.

Almost the first book on birds that I ever read, in fact my primer in the study, was 'The Birds of Long Island,' by J. P. Giraud, Jr., which is without doubt one of the best local lists ever written. With this work as a basis on which to build, the task of completing the list of Long Island birds becomes comparatively easy. As Mr. Giraud's List is in the hands of very few of the readers of 'The Auk,' I have thought it desirable to quote his entire annotation regarding each species on which I publish notes.

In the present paper I have the pleasure of adding six new species and subspecies to the list of Long Island birds, as follows:

Larus minutus. LITTLE GULL.
Puffinus borealis. CORY'S SHEARWATER.
Fregata aquila. MAN-O'-WAR BIRD.
Otocoris alpestris praticola. PRAIRIE HORNED LARK.
Protonotaria citrea. PROTHONOTARY WARBLER.
Dendroica palmarum. PALM WARBLER.

Three of these are new records for the State of New York, viz.,
Larus minutus. LITTLE GULL.
Puffinus borealis. CORY'S SHEARWATER.
Protonotaria citrea. PROTHONOTARY WARBLER.

The Little Gull is also the first positive record for the Continent, the previous and its only other record being shadowed with doubt.

1. **Urinator lumme.** RED-THROATED LOON. Mr. Giraud says: "Those procured in this vicinity are usually young birds—adults seldom occurring."*

Mr. Newbold T. Lawrence, when recording two adult specimens taken on Long Island, says, "In this plumage it is rare."†

Mr. J. C. Knoess, who for many years has practiced taxidermy at Riverhead, Long Island, informs me that he has two very fine specimens of this Loon in the adult plumage "with beautiful red throats." Both were procured on the Island, "and are the only ones in mature plumage I ever saw on the Island." The writer, while at Sag Harbor, in the spring of 1886, saw in the shop of Messrs. Lucas and Buck, taxidermists, a specimen which had been sent to them in the spring of 1885. It was shot in Mecox Bay, Suffolk Co., and was the first one they had ever seen in the adult plumage. Mr. A. E. Sherrill, of East Hampton, Suffolk Co., shot a full plumaged male May 8, 1887. It is now in my collection. He informs me that this specimen was shot at Montauk Point, on the ocean, about a mile off shore. It was alone. He adds, "I never saw one of these Loons except in the spring, and few of them at that season of the year. I never killed one just like it before, but have several times heard of their being shot. They are known locally as Sheldrake Loon." Mr. A. H. Helme, of Miller's Place, Suffolk Co., writes to me as follows: "While crossing the Sound, May 11, 1887, from Bridgeport, Conn., to Port Jefferson, Long Island, when about one mile from the Connecticut shore, I saw about twenty-three Red-throated Divers. They were singly, or in pairs, or three together. Those which came near enough to enable me to distinguish the markings were in immature plumage."

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* The Birds of Long Island, 1844, p. 381.

† Notes on several rare birds taken on Long Island, N. Y. Forest and Stream, Vol. X, p. 235.

2. **Fratercula arctica.** PUFFIN.—Mr. L. S. Foster, of New York City, permits me to record a specimen of this species, now in his collection, which was captured about December 15, 1882, at Centre Moriches, Suffolk Co. Mr. Giraud says: "It but seldom occurs, and only in winter on the coast of Long Island."*

3. **Larus minutus.** LITTLE GULL.—The claim of this Gull to be included in the North American Avi-fauna has always been questionable, some writers allowing it a place on the specimen said to have been taken on the first Franklin Expedition, while others throw it out entirely. Swainson and Richardson include it on the strength of the Franklin specimen, as follows: "A specimen obtained on Sir John Franklin's first expedition, was determined by Mr. Sabine to be a young bird of the first year of this species, exactly according with M. Temminck's description. We have not that specimen to describe, and none was procured on the second expedition."†

Neither Audubon nor Wilson mention it, and Nuttall in a very general way refers it to the United States, but does not mention the taking of any specimens except the one above mentioned. He says, "This small species inhabits the north of both continents, and was seen in the fur countries in Franklin's first expedition, but does not appear to be at all common in those countries, and is equally rare in the United States."‡

Baird, Cassin and Lawrence merely refer to it as follows: "Hab. Arctic America? Europe. There is no specimen in the collection from North America." §

Dr. Coues, in his 'Birds of the Northwest,' refers the Franklin expedition specimen to *Larus philadelphia*, in the synonyms on page 655, and on p. 658 has the following: "Note.—The *Cræcocephalus minutus*, by some included among North American birds, has no grounded claim to be so considered. I therefore omit the species, which I cannot recognize as an inhabitant of this country until some conclusive evidence is brought forward. The whole claim may be seen to rest upon an identification of Sabine's, who, in all probability, mistook *philadelphia* for *minutus*."*

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* Birds of Long Island, p. 374.

† Fauna Boreali-Americana, Vol. II, 1831, p. 426.

‡ Manual of the Ornithology of the United States and of Canada, 1834, p. 289.

§ Pacific Railroad Reports of Explorations and Surveys, Vol. IX, 1858, p. 853.

It is included among the Laridæ in the 'Water Birds of North America' on the strength of the specimen so often referred to before, although the reference is made in a hesitating manner: "The claim of this bird to be included in the fauna of North America rests upon somewhat questionable grounds. Richardson states that a single individual of this species was obtained on Sir John Franklin's first expedition to the Arctic Regions."†

It is omitted from the American Ornithologists' Union Check-List of North American Birds, not even being placed in the 'Hypothetical List.

I have the pleasure of recording the capture of an immature specimen of this Gull. It was shot at Fire Island, Suffolk Co., New York (Long Island), about September 15, 1887. It was mounted by Mr. John Wallace of New York City, into whose possession it came, and who very generously presented it to the American Museum of Natural History, Central Park, New York City. It is No. 3156 in the mounted collection. Mr. Eugene P. Bicknell first called my attention to this specimen, which he had seen at Mr. Wallaces's, by kindly sending me a note stating, "You might find it worth your while to go to Wallaces's and look at a small Gull from Long Island which is drying there. It is in young plumage and, so far as I can see, may be any of the small Gulls. Wallace claims it to be different from anything he has seen." Subsequently I visited the shop of Mr. Wallace and identified it as *minutus*. Mr. Wallace informed me that the specimen was sent to him in the flesh by Mr. W. W. Wilson, of South Oyster Bay, Suffolk Co., N. Y. In response to an inquiry as to how he obtained it, Mr. Wilson replied: "The small Gull you wrote about was shot by Robert Powell, at Fire Island. It is the only one of the kind I have ever had." To complete the chain of evidence I wrote to Mr. Powell for information regarding its capture and he responded as follows: "I was on the bay after Snipe,—that is my business,—and there came twenty-five or thirty Gulls, ten or fifteen of them within shot. I saw this Gull looked so much different, I shot him first. That is my reason for shooting him, he looked so different." I may add that on very many occasions, while shooting in company with the baymen and professional gunners on the South Side of Long Island, I have noted with surprise their wonderful powers of observing the slightest differences among birds while they were yet flying. To the keen sight of Mr. Powell we are indebted for the specimen which gives *Larus minutus* a place in the list of the North American birds.

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* Birds of the Northwest, 1874, pp. 655, 658.

† The Water Birds of North America, by Baird, Brewer and Ridgway, Vol. II, 1884, p. 265.

4. **Puffinus borealis.** CORY'S SHEARWATER.—Ever since the discovery of this species I have felt sure that it eventually would be added to the list of Long Island birds. When I read in 'The Auk' for January, 1887, the note by the late Professor Baird, recording the occurrence of Cory's Shearwater in numbers between Point Judith (Rhode Island) and Vineyard Sound, I was certain that the time was near at hand. It was with great pleasure, therefore, that I received from Messrs. Lucas and Buck, two specimens, a male and female, which, with four others, were shot off Amagansett, Suffolk Co., about October 18, 1887.

5. **Puffinus auduboni.** AUDUBON'S SHEARWATER.—My son, Basil Hicks Dutcher, while examining the catch of a fishing smack at Amityville, Suffolk Co., found a specimen of this species lying on the deck. Capt. Joshua Ketcham, the owner, kindly gave it to him and also stated that the bird "was captured, while alive, in Great South Bay, opposite Bellport, August 1, 1887. It refused food and lived but a few days." On skinning the bird a contused wound was found on the right breast, evidently caused by a blow. According to Mr. Giraud, "This is another of those stragglers that occasionally visit the coast of Long Island." *

6. **Fregata aquila.** MAN-O'-WAR BIRD.—The claim of this bird to be included in the fauna of Long Island has heretofore rested on the specimen captured by Capt. Brooks, in 1859, on Faulkner's Island, Long Island Sound.† After an interval of twenty-seven years another straggler from the tropics furnishes an additional record of extra-limital occurrence. In August, 1886, Messrs. Lucas and Buck wrote to me that they had just mounted a specimen of the Frigate Pelican for Mrs. John Lyon Gardiner, which had been shot on Gardiner's Island. Subsequently I ascertained, on inquiry, that the bird was shot August 4, 1886, by Mr. Josiah P. Miller, the keeper of the lighthouse. His account of the capture of the specimen is as follows: "The Man-o'-War Bird which I shot a while ago, was, when I first discovered it, sitting on a piece of old wreck, about fifty rods distant from the lighthouse. I tried to get a shot at it, but it saw me before I was near enough, and flew off up the beach out of sight. It came back in about an hour and settled in the same place as before. This time I went on the opposite side of the beach and concealed myself in the grass. My daughter went toward the bird, when it flew directly over me, giving a splendid shot. It was alone, and is the only one of the kind that I ever saw in this part of the world. I have kept this light for twenty years."

7. **Anas strepera.** GADWALL.—Mr. A. H. Helme, of Miller's Place, allows me to record a Gadwall Duck which was taken April 9, 1879, at Mount Sinai Harbor, Suffolk Co. It was shot by a gunner who reported having secured a similar Duck a few days prior. The last one shot was seen by Mr. Helme and positively identified; but the first one, although probably a Gadwall, may have been some other species. November 24, 1886, a female of this rare species was sent to me by Mr. Andrew Chiches-

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* Birds of Long Island, p. 370.

† American Naturalist, Vol. IX, p. 470.

ter, of Amityville, who subsequently sent to me the following note: "My brother and I were gunning in partnership; I was at the north end of Gilgo Island and he was about three-quarters of a mile west of me and to the windward. A flock of fifteen or twenty Black Ducks came to my decoys and I noticed among them one which I supposed was a Pintail or Widgeon, but as they do not sell as well in market as Black Ducks, I paid no further attention to it, but tried to make the best shot I could at the others. The flock passed on to my brother's blind, but would not come near enough for a shot, although they noticed the decoys. After passing, the Gadwall left the flock, turned back and lit among the decoys, when he shot it. Neither my brother nor myself ever saw one like it before, nor have we ever heard of one being killed around here." The Messrs. Chichester are professional gunners who are well acquainted with the wild fowl that frequent the western end of Great South Bay. Mr. Giraud says of this Duck: "In this vicinity, the Gadwall is quite rare. My first acquaintance with this bird was in 1834, while pursuing my favorite amusement of water fowl shooting in the celebrated South Bay. It was flying alone, seemingly wandering about as if in search of companions. It passed and repassed several times outside of my decoys, without approaching within gunshot, but sufficiently near to excite in me a desire for having a better opportunity to examine it. I concealed myself with great care, hoping that it would approach within shooting distance, as I was induced to believe that it would, from the desire it exhibited to join the motley flock which my 'decoys' represented; but as it advanced, it appeared to see that all was not right, and at the moment when my hopes were the brightest, it quickly changed its course, and alighted on a marsh about a half a mile from me. I gave quick pursuit, and after wading through the tall grass and mud, discovered it sitting on a bog, pluming and dressing its feathers, unconscious of its impending fate. Its perfectly neat appearance so engaged my attention, that I forgot that a gun was in my possession, until it took to wing, when the desire to obtain it returned, and I brought it down. On taking it up, although proud of this valuable acquisition to my collection, I could not forbear feeling that Nature had been robbed of one of her greatest ornaments. I have since killed a few along the south shore of Long Island." *

8. **Somateria spectabilis.** KING EIDER. — Mr. Giraud says of this species: "This remarkable Duck is seldom seen within the limits of the United States, although I had the good fortune to add to my collection an adult male in perfect plumage, that was shot on Long Island Sound, in the winter of 1839. During winter—at Egg Harbor (New Jersey) as well as on the shores of Long Island—the young are occasionally observed. But the adult specimen now in my possession, and one other, are the only individuals in full and mature plumage, that I have ever known to be procured in the vicinity of New York." † Early in December, 1886, Mr. A.

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* Birds of Long Island, pp. 305, 306.

† Ibid, p. 333.

H. Helme visited Capt. J. G. Scott, keeper of the lighthouse at Montauk Point, and while there had the good fortune to procure an adult female of this species. His account of the capture is as follows: "It was alone when shot and was feeding in the shallow water among the rocks in a sheltered cove. It was at first mistaken for a Dusky Duck, whose mate had been shot at this spot the preceding day. It was shot at and twice driven from its feeding ground only to return the third time to offer itself, apparently, a voluntary contribution to the cause. It had previously been wounded, the right tibia having been broken near the tibio-tarsal articulation. As the bones had not united the bird evidently found it difficult to feed in the deeper water. This will, I think, account for its attachment to the spot where it was shot. Capt. Scott reports seeing, while off the Point ducking, several Ducks which he calls 'Isle of Shoal Ducks.' They may be female Eiders or Scoters." January 22, 1887, Capt. Scott sent to me one of the Isle of Shoal Ducks, which proved to be a female King Eider. He reported them, "living off the Point since early in November (11th), when I saw a flock of four; the next day I saw ten at one time. They appear less shy than the other wild fowl, and will permit a nearer approach in a boat. In this locality it is seen occasionally in the winter months, on the ocean, from one-quarter to one-half mile from shore. It is not a common Duck, and I believe it is only a few years since they have been seen off Montauk Point, but this winter they have been more than usually common. There is a shoal, with a depth of water from fifteen to twenty feet, about one-quarter of a mile off the Point, where I go to shoot Ducks, but can only do so when the surf will permit. Every time I have visited this spot this winter, I have seen from four to twenty King Eiders." March 19, 1887, Capt. Scott sent to me a young male which he shot from a flock of twenty. April 8, he wrote, "I was out to-day and saw about thirty King Eiders, as many as I have seen any day this winter. I think about one-third of the birds were males." Late in the winter I wrote to Capt. Frank Stratton, keeper of the Ditch Plain Life Saving Station, asking whether this species was a regular winter visitant near Montauk, and he replied as follows: "The King Eider Ducks are quite rare here; I think I have known only about ten killed in as many years. I shot three, the first of November, I think in 1880. We see a few every winter, between November 1 and May 1, usually singly or in pairs, hardly ever in flocks. They feed on mussels or small shell-fish which they pick up from the bottom of the ocean. They never come into the ponds or bays; at least I have never seen one except on the ocean. They are very fair eating, nearly as good as a Black Duck." April 21, 1887, Capt. Stratton sent to me a male and female which had been shot off his station by one of the Life Saving Crew. "They were about one-quarter of a mile off shore, where the water was from three to four fathoms deep." They were both gorged with the young of the common edible mussel (*Mytilus edulis* Linn.), which Capt. Stratton says grow in large quantities in the ocean around Montauk, wherever there is a rocky bottom. The two specimens above referred to were the last ones seen.

9. **Olor columbianus.** WHISTLING SWAN.—Mr. Giraud says regarding the genus *Olor:* "The present species is the only one which I have ever known to be seen in this vicinity."* The first settlers on Long Island undoubtedly found Swans in great numbers, as did their eastern neighbors. † At the present time, however, this noble bird can hardly be called more than a straggler. November 5, 1886, one was shot in Reed Pond, Montauk, by Mr. George Hand; it was alone. Capt. Scott informs me that Mr. Jonathan Miller shot one about twelve years since while he was keeper of the light at Montauk Point. It was mounted and is now in his possession at his home in Amagansett. Mr. Eugene A. Jackson, of Atlanticville, reported to me that one was shot November 26, 1886, on Shinnecock Bay. Nothing but the head and neck were preserved; these are now in my collection. This is the same bird recorded in 'Forest and Stream,' Vol. XXVII, p. 364.

10. **Rallus elegans.** KING RAIL.—Mr. Giraud says of this Rail: "During my frequent excursions on Long Island, I have not had the good fortune to meet with this large and beautiful Rail, and have only seen one specimen that was procured in that locality, which was shot in the vicinity of Williamsburg, and is now in the valuable collection of George N. Lawrence, Esq." After quoting Mr. Audubon at some length, as to its being altogether a fresh water bird, he concludes by saying: "Hence we may conclude that its occurrence with us is extremely rare." ‡ As it is, like all of the Rallidæ, partly nocturnal and extremely secretive in its habits, it is probably overlooked and is more common than it is thought to be. Mr. Knoess, of Riverhead, has a mounted specimen in his collection. It is a young bird and was caught alive on the shores of Peconic Bay. It is the second one that has been brought to him alive. He cannot say positively whether it was bred there, but he is under the impression that it was.§

Mr. Squires, of Ponquogue, Suffolk Co., has in his possession a mounted specimen which was shot some years since on the meadows opposite the Great West Bay Light, Shinnecock Bay. It was taken in the summer. My friend, Mr. Alfred A. Fraser, of Oakdale, Suffolk Co., presented me with a magnificent specimen in the flesh, which he shot November 2, 1886, on a meadow bordering a fresh water stream, emptying into Great South Bay, at Bayport, Suffolk Co. He wrote: "I cannot remember of bagging over half a dozen in my twenty years' shooting on Long Island," Mr. Fraser is the fortunate possessor of a beautifully located country seat of 800 acres, which affords him many hours of sport with his dogs and gun.

March 3, 1887, one of these birds struck the Montauk Point Lighthouse, and was sent to me by the keeper, Capt. Scott. He stated that the bird

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[*] Birds of Long Island, p. 299.

[†] See Dr. C. Hart Merriam, Birds of Connecticut, p. 120. J. A. Allen, A Revised List of the Birds of Massachusetts, p. 233. Wm. Dutcher, Forest & Stream, Vol. XXVIII, p. 106.

[‡] Birds of Long Island, p. 210.

[§] See Birds of Connecticut, p. 115.

struck the light on the east side of the tower. If it was migrating northward, it should have struck the tower on the west side, the trend of the Island being about east and west, but striking on the opposite side indicates that it only struck after circling about the light.*

11. **Porzana noveboracensis.** YELLOW RAIL.—Mr. Giraud says: "Notwithstanding this species is but seldom met with on Long Island, I am not inclined to think it so exceedingly rare in this vicinity as it is generally supposed. Its habits of skulking among the tall grass and reeds that overgrow the wet and but seldom frequented marshes, as well as its unwillingness to take wing, may, I think, in a measure account for its apparent extreme scarcity with us."†

Mr. A. A. Fraser sent to me April 29, 1887, a specimen of this species which his dog caught alive. As his account of the occurrence is very interesting, corroborating fully the statements of Mr. Giraud and Dr. Grinnell regarding the difficulty of flushing this Rail, I give it in full: "They are very hard to get, as it is almost impossible to make them take wing. This one was secured while I was beating the salt meadows for English Snipe. My dog came to a beautiful stiff point; I walked up to flush the bird, expecting to see a Snipe get up, but instead, the dog broke point, and run his nose in the meadow grass and brought to me very carefully the Rail." When I received it, it was so lively, and also so pretty, that I disliked to kill it, so took it to the menagerie at Central Park, New York City. Mr. Conklin, the Superintendent, placed it in a large cage, surrounded with a fine wire netting, in company with some Quails and Doves. Its restlessness was pitiful: it ran from side to side of the coop and thrust its head in the loops of wire looking for a hiding place. During its first night in confinement its neck was caught in one of the wire loops and it became an involuntary suicide. Its remains now rest peacefully, with those of several other members of its family, in a tin vault dedicated to the post-mortem uses of the avi-fauna of Long Island.

12. **Crex crex.** CORN CRAKE.—Since my previous record of this bird on Long Island,‡ I have had a mounted specimen presented to me by Mr. A. A. Fraser, who "bagged the bird, November 2, 1880. It was at the foot of the uplands, where they join the meadows, in heavy cover, with springs running from it."

13. **Phalaropus tricolor.** WILSON'S PHALAROPE. My friend, Mr. Charles E. Perkins, again enriched my collection of Long Island birds by sending to me, September 13, 1887, a specimen of this Phalarope, which

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* See Bird Migration, By William Brewster. Mem. Nuttall Ornith. Club, No. 1, 1886.

† Birds of Long Island, p. 205.

Dr. C. Hart Merriam in his Birds of Connecticut, pp. 118 and 119, gives a very interesting letter from Dr. George Bird Grinnell regarding the capture of several specimens of this species near Milford, Conn. He found "They were ridiculously tame and would run along before the dog, creeping into the holes in the bogs and hiding there while we tried in vain to start them."

‡ Auk, Vol. III, 1886, p. 435.

he shot that day, at Shinnecock Bay, Suffolk Co., while shooting Bay-birds (Limicolæ) over decoys. Two days after he shot another.

14. **Tringa maritima.** Purple Sandpiper.—This species was one of the desiderata of Mr. Giraud, who wrote of it as follows: "This species I have never met with, and from my own observations of its habits and customs I know nothing. On the shore of Long Island it is exceedingly rare. Of all the transient visitors, there is no species for which I have made more diligent search than the Purple Sandpiper. At different seasons of the year, I have traversed the beaches and shoals on the south, and rambled over the rocky shores of the north side of the Island—but thus far it has eluded all my endeavors. Respecting it, I have had frequent conversations with the bay-men, without gathering any information, it being to those with whom I have conversed entirely unknown; and were it not from having in my possession a specimen that was purchased in Fulton Market, and having seen two or three others that were procured through the same source—all of which, it is said, were shot on the eastern end of the Island—I would not feel at liberty to include it in our local Fauna." *

It is very probable that this Sandpiper is only found, now, as when Mr. Giraud wrote of it, on the eastern portion of the Island, and perhaps on the north side, where it can find the rocky shores so necessary to its existence. Mr. Newbold T. Lawrence† and Mr. Robert B. Lawrence,‡ both well known in connection with Long Island birds, have each recorded one specimen from the Island. It is further probable that it is not only a regular winter visitant, but that it is not uncommon in suitable localities on Long Island. Its being found only on rocky shores and during the winter months, accounts largely for its being overlooked. The bleakness and desolation of winter along the seashore deters sportsmen from frequenting it even at the most favorable times, but when there is added the snow and sleet of a northeast gale none but the hardy members of the Life Saving Crews, those noblemen who ever stand ready to risk their own lives to save those of storm-tossed and surf-beaten mariners, and the isolated few who devote their lives to solitude and loneliness in the light-house towers, that stand as beacons to warn the sailor where danger lurks, ever have the opportunity of observing this boreal Sandpiper in its chosen surroundings. At the entrance to Long Island Sound lies a small rocky island, known as Little Gull, on which is erected a lighthouse that by day and night serves as a guide from the stormy waters of the Atlantic to the land-locked Long Island Sound. The keeper of this light, Mr. H. P. Field, has given me many valuable notes, and some specimens, of the birds of his vicinity. His means of communication with the mails are by sailing a long distance to the nearest port on Long Island, or else to put off in a small boat and hail some inward bound vessel and get the master to forward his notes or specimens. Communication is therefore so infrequent that I supply him with small blank books in which he makes almost daily records of the birds noted; also the weather and temperature. These books are sent to me January and July first. In the report for the first half of 1886, Mr. Field noted, January 23: "Observed some small Snipe feeding on the rocks,—temp. 20°." The next day he notes: "The little Snipe still here, while it is snowing hard,—temp. 8°." None were seen again until January 30, when he writes: "One little Snipe made its appearance again to-day,—temp. 32°." February 1, another one joined the solitary individual noted January 30. This pair remainded until the 10th of February, "feeding on the rocks," although the temperature on the 4th was —2°. On the 17th they returned, remaining one day and then disappeared until February 23. They again wandered off, returning March 3, and remaining three days. None were seen again until March 25, when one returned to say to Mr. Field that the temperature of 38° was entirely too tropical, and that he wished to say for himself and his mates, farewell, as they were about to start for a more frigid clime. The journey evidently was commenced, as none were again seen.

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* Birds of Long Island, pp. 236, 237.

† Forest and Stream, Vol. X, p. 235.

‡ Ibid., Vol. XXVII, p. 428.

Mr. A. H. Helme, while at Montauk Point in December, 1886, saw three individuals of this species and secured two of them, a male and female. The first one secured was shot about two miles west of the Point, and the second was killed near Fort Pond, about four miles from the Point. February 10, 1887, a flock of three made their appearance at Little Gull Island, and Mr. Field secured them all and sent them to me in the flesh. No others visited either Little Gull Island or Montauk Point, during the winter of 1886–87. November 1, 1887, a solitary individual was shot at Montauk Point, by Capt. Scott, who sent it to me, together with a Sanderling (*Calidris arenaria*), which was shot from a flock of twenty at the same place and on the same day.

15. **Cathartes aura.** TURKEY VULTURE.—Since making my previous record* on this species I have secured several others through the kindness of Mr. Alfred Marshall, an Associate Member of the Union. The records were all made at the extreme southwestern portion of the Island, Mr. Marshall residing in Flatbush, Kings Co. The following is a copy of his notes: "September 5, 1877, Mr. Johnston says, 'The flagman on the Manhattan Beach R. R., at the Parkville crossing, saw a large bird flying about six feet from the ground, and as it flew by succeeded in stunning it with a stone. He afterward saw it and found it to be a Turkey Vulture in splendid condition.' June 9, 1885, Mr. Johnston also saw two flying over his residence at Parkville, and again on August 26, of the same year, he saw another. July 19, 1886, he saw still another, being pursued by a Crow. The Vulture mounted to a great height, the Crow following. In May, 1885, I saw one, and May 16, the following year, I saw another. It was sitting on the top of a dead tree near Ocean Avenue, Greenfield, Kings Co. Two or three wagons drove by while I was watching the bird, but it did not fly, so I crept under the tree to get a good view of it. After watch-

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* Auk, 1886, Vol. III, p. 439.

ing it for ten minutes, I threw a stone to start it, but it did not fly until I hit the limb it was sitting on; then it flew to another tree about fifty yards off and commenced cleaning its feathers. It was about 5 A.M. when I saw the bird first. I think it had been eating and had gorged itself. These are all the notes I can collect, and I believe they cover the visits of this Vulture in our locality for the past decade."

16. **Strix pratincola.** American Barn Owl.—Since my record of the breeding of this species on Long Island* I have heard of the capture of a specimen. Mr. Knoess wrote to me as follows: "I see by reading 'The Auk,' that you mention the Barn Owl as being a rare bird: I mounted a beautiful specimen, shot November 20, 1886, at West Hampton, Suffolk Co., a female. It is the first one I ever mounted on the Island. My friend who shot it saw it perched on a tree near the post office, between one and two o'clock, P.M.

17. **Alauda arvensis.** Skylark. — Late in June, 1887, I received a request from Dr. C. Hart Merriam to investigate a statement made in a New York paper, that "Skylarks are abundant on Long Island, at Flatbush and from that place down, easterly through a stretch of land extending to Flatlands, and thence around and about the town of Flatlands." I referred the request to Mr. Alfred Marshall, who resides at Flatbush and is well acquainted with the locality. Within a few days (July 2) he wrote that he had secured two birds which he supposed were Skylarks. They were forwarded to Dr. Merriam who pronounced them "unquestionably the true European Skylark (*Alauda arvensis*)." Subsequently, Mr. Marshall informed me that he found the Skylarks in the long-grass fields, and that they were quite plenty. Those secured were young birds. On the 12th of July he saw a great many, all adults, and singing. He also saw one carrying food in its mouth, and supposing it had young, he noted where it dropped into a piece of timothy grass. He was unable to find the nest then, but later, on the 14th, he was more successful, as he found it with five half-grown young. The nest was composed of grass and was placed in a depression in the ground, about two and one-half inches deep, and was hidden under a tuft of grass. The Skylarks remained until September 15, on which date Mr. Marshall saw the last one.

18. **Otocoris alpestris praticola.** Prairie Horned Lark. — Mr. John Hendrickson, of Long Island City, Queens Co., has the honor of having secured the first specimen of this variety of the Horned Lark on Long Island. July 31, 1886, he shot one near his home. His brother, Mr. W. F. Hendrickson, when writing to me about it, asked if it was not early in the season for a Shore Lark to be found, and also stated that the specimen was very small. Subsequently he sent it to me, but as I had no others to compare it with, I forwarded it to Dr. A. K. Fisher, at Washington, for comparison and identification. He replied to my inquiry as follows: "The specimen is *Otocoris alpestris praticola*. To make doubly sure, I had Mr. Ridgway examine it and he said there was no question but that it was

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*Auk, Vol. III, 1886, p. 439.

praticola. I should not be surprised, if in a few years the bird would be a common breeder on Long Island." September 14, 1887, the Messrs. Hendrickson sent to me in the flesh a Horned Lark which, from its immaturity, had evidently been bred on the Island, and consequently must be *praticola.*

19. **Calcarius lapponicus.** LAPLAND LONGSPUR. — One shot at Long Island City, Queens Co., January 11, 1886, by John Hendrickson, is the only record I have secured since those noted in 'The Auk' of October. 1886.* This specimen was in company with four Horned Larks. "It had but one leg, the left one having been cut off: the wound was entirely healed." Mr. Giraud considered this bird an extremely rare straggler. "In the winter of 1838, several specimens of this bird were observed in the New York markets, having been shot on Long Island—but I am not aware that this species has ever before or since been met with in our section."† From my records made thus far I cannot consider individuals of this species in the light of stragglers. Further observations, made on the beaches and grassy plains, may prove them to be regular, but not common, visitants, as in Massachusetts.‡

20. **Zonotrichia leucophrys.** WHITE-CROWNED SPARROW.—Mr. Giraud includes this bird in his list, but does not say specifically that he ever took or even saw a specimen on Long Island. Inferentially he includes it, but considers it rare "in the Middle States."§ Mr. Geo. N. Lawrence, gives it in his list, and I find in his collection, now in the American Museum of Natural History, Central Park, New York City, two specimens from Long Island. I have secured two specimens in the past nine years. The first one of these has already been recorded.‖ The last one, an immature male, I shot October 16, 1886, at Broadway, Queens Co. It was first seen in a roadside thicket of catbriars (*Smilax rotundifolia*), but was thought to be a White-throated Sparrow. After the lapse of half an hour the thicket was again visited and the bird was found and secured. It was alone.

21. **Piranga rubra.** SUMMER TANAGER.—Mr. Giraud does not include this species among the Long Island birds, nor does Mr. George N. Lawrence include it in his catalogue.¶

The former says, when speaking of the Scarlet Tanager (*Piranga erythromelas*): "This species is the only one of the Genus that is found in this vicinity.** The latter states, " I have seen it in the Magnolia Swamps of the New Jersey coast near Atlantic City, but never met with it any further north." Since my previous records* I have had two additional specimens reported to me by Mr. John C. Knoess, who writes: "I have a beautiful specimen, killed last April (1886) at Manor, Suffolk Co., and another at Promised Land, also in Suffolk Co. They are the first I ever saw on the Island." Can it be that this species is extending its range northward?

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* Auk, Vol. III, 1886, p. 440.

† Birds of Long Island, 1844, p. 99.

‡ See A Revised List of the Birds of Massachusetts. By J. A. Allen. Bull. Amer. Mus. N. H., Vol. 1, No. 7, July, 1886, p. 250.

§ Birds of Long Island, p. 123.

‖ Auk, Vol. I, 1884, p. 175.

¶ Catalogue of Birds observed on New York, Long, and Staten Islands, and the adjacent parts of New Jersey. Ann. N. Y. Lyc. Nat. Hist., VIII, p. 286, April, 1886.

** Birds of Long Island, p. 136.

22. **Protonotaria citrea.** PROTHONOTARY WARBLER. — Neither Mr. Giraud, in 1844, nor Mr. Lawrence, in 1866, gave this species in their Long Island lists, nor can I find a well authenticated record for the State of New York. I now have the pleasure, however, of adding this beautiful Warbler to the New York birds, through the kindness of Capt. Scott. who sent me one that struck the light at Montauk Point, during the night of August 26, 1886. It was found dead at the base of the tower on the following morning. The night was hazy, with wind changing from northeast to southwest. So far as Capt. Scott knows the bird was alone, that is, he found no others dead, nor did he see any about the lantern. He states that it was the first one of the kind that he had ever seen. This record, taken in connection with that made by Mr. William Brewster, in this journal, October, 1886,† is particularly interesting. The two specimens taken by Mr. Brewster at Concord, Mass., were shot on August 17 and 23, and my specimen struck the lighthouse on the 26th. Perhaps this last specimen was one of the family from which Mr. Brewster secured two members, but if not so, it certainly to some degree bears out his claim, "that during 1886, at least, there has been a regular, if limited, flight into and from New England."

23. **Dendroica striata.** BLACK-POLL WARBLER.—Of the five hundred and ninety-five birds which were killed by striking Fire Island Light, September 23, 1887, no less than three hundred and fifty-six of them were of this species. Among them I found a very beautiful partial albino.

24. **Dendroica palmarum.** PALM WARBLER.—During the night of the 23d of September, 1887, a great bird wave was rolling southward along the Atlantic Coast. Mr. E. J. Udall, first assistant keeper of the Fire Island Light, wrote to me that the air was full of birds. Very many of the little travellers met with an untimely fate, for on the following morning Mr. Udall picked up at the foot of the light house tower, and shipped to me, no less than five hundred and ninety-five victims. Twenty-five species were included in the number, all of them being land birds, very nearly half of which were Wood Warblers (Mniotiltidæ). Among these I found one female Palm Warbler. This is the first record for Long Island of the western form, those included by Mr. Giraud‡ and Mr. Lawrence§ in their lists being undoubtedly the eastern form, *hypochrysea*.

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* Auk, Vol. III, 1886, p. 442.

† Auk, Vol. III, 1886, pp. 487, 488.

‡ Birds of Long Island, p. 59.

§ Ann. N. Y. Lyc. Nat. Hist., VIII, April, 1866. p. 284.

25. **Mimus polyglottos.** MOCKINGBIRD.—Mr. Arthur Tepper, of Flatbush, Kings Co., brought to me a specimen of this species for indentification, and informed me that it had been shot in his neighborhood, in the early part of November, 1884. He also stated that another one had been shot a short time previously in the same locality. On two other occasions he saw what he was positive were Mockingbirds, both being in the summer. Mr. Giraud says of it: "This unrivalled songster occasionally passes the season of reproduction on Long Island."*

26. **Thyothorus ludovicianus.** CAROLINA WREN.—Since my previous record† another specimen has been brought to my notice by one of my correspondents, Mr. Henry Hicks, of Westbury Station, Queens Co., who now has it in his collection. He secured it the latter part of March, 1886. It was first seen March 22, about an open hovel, and remained about the place until the 25th, when it was shot.

SUPPLEMENTARY NOTES FROM THE GULF COAST OF FLORIDA, WITH A DESCRIPTION OF A NEW SPECIES OF MARSH WREN.

BY W. E. D. SCOTT.

Chen hyperborea nivalis. GREATER SNOW GOOSE — Mr. J. W. Atkins, of Key West, Florida, has kindly forwarded to me a representative of this subspecies taken near Punta Rassa, Florida. There were four individual in the flock from which this specimen was obtained. This is the only record resulting from four years' work on this coast.

Ardea wardi. WARD'S HERON.—The references to *Ardea herodias* in my recent papers on the 'The Present Condition of some of the Bird Rookeries of the Gulf Coast of Florida' (Auk, Vol. IV, pp. 135, 213, and 273) should probably all be attributed to this species. *Ardea herodias*, so far as I am now aware, does not occur on the Gulf coast of Florida south of the mouth of the Withlacooche River. In the vicinity of Tarpon Springs, Hillsboro County, Ward's Heron is still a comparatively abundant bird. It breeds in colonies of varying size, not less than three, or more than twenty-five pairs being associated together. The localities chosen for breeding are generally small islands having a considerable growth of trees, and with open expanses of fresh water on all sides. Such islands are frequently to be found in cypress swamps and are apparently the favorite breeding resorts. Mating begins in late December or early January and by the middle or last of the latter month the eggs are laid. I have taken in this vicinity young ready to fly as early as the 20th of February. Two young are more commonly reared in a brood, though occasionally I have seen three in a nest.

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* Birds of Long Island, p. 82.

† Auk, Vol. III, 1886, p. 442.

The breeding season is protracted, and seems to vary with localities, as I found young not more than two weeks old late in May near Punta Rassa, which point is about one hundred and fifty miles south of Tarpon Springs. Two broods at least are reared each season.

Ardea rufescens. Reddish Egret.—Though I have demonstrated to my entire satisfaction that this species is identical with the so-called *A. pealei*, the result of the investigations carried on will be briefly recapitulated to enforce and emphasize the facts that substantiate the position taken. The birds are common on the Gulf coast of Florida as far north as Anclote Keys, but at certain points one or the other phase seems to predominate, the species being represented in the southern part of the area almost wholly by white individuals and in the northern part the dark form largely predominates. However, at points in Charlotte Harbor, both phases occur commonly, and here I obtained several specimens in parti-colored plumage, *i. e.*, partly dark colored, mottled or pied with white feathers (see Auk, Vol. IV, No 3, p. 215). Mr. George B. Sennett recently kindly allowed me to examine several Reddish Egrets collected by himself on the Texas coast, two of which showed to a marked degree this same parti-colored condition of plumage.

Finally, to go back several years, I quote from the 'Bulletin of the Nuttall Ornithological Club,' Vol. VII, 1881, p. 20:

"At Clearwater and just south of it, and particularly at points on Old Tampa Bay, I found the Reddish Egret (*Ardea rufa*) abundant. While most common in the dark plumage, many were noted and some obtained in the white plumage, the so-called *Ardea pealii*. They began breeding in March and were breeding commonly in April, Mr. Devereux obtaining numerous sets of their eggs, varying from four to six in number. This gentleman found *young* in *both plumages* in the same nest where the *parents* were *both blue birds*," Mr. Devereux was at this time my assistant and eminently qualified to make correct and careful observations. I had been obliged to leave the point in question before the breeding season began, but had called his special attention to the thorough investigation of the problem, which at that time, the winter of 1879-80, was still an open one to my mind.

Macrorhamphus scolopaceus. Long-billed Dowitcher.—Of rather common occurrence near Tarpon Springs in the fall and early winter months, and I have specimens taken near Fort Meyers, on the Caloosahatchie River, in December.

Tringa maritima. Purple Sandpiper. — A specimen of this species was taken by Mr. J. W. Atkins, at Gordon's Pass, west coast of Florida, in November, 1886. This occurrence greatly extends the known range of this species to the southward, it being of rare occurrence on the Atlantic coast south of Long Island, N. Y. I am indebted to Mr. Atkins for the opportunity of examining and recording this interesting specimen.

Ereunetes occidentalis. Western Sandpiper.—Though not so abundant as *E. pusillus*, yet this appears to be a regular visitor every season, arriving early in the fall.

Symphemia semipalmata inornata. Western Willet. — Both forms of Willet occur in the vicinity of Tarpon Springs, and though I have representatives of *inornata* in full plumage, yet the smaller form is the one breeding commonly about this point, and localities visited on Tampa and Hillsboro Bays. *S. s. inornata*, however, seems to be the commoner form throughout the winter months.

Columba leucocephala. White-crowned Pigeon. — Through the kindness of Mr. Atkins, of Key West, I am able to record a representative of this species from Punta Rassa. This is a young male of the year, just beginning to assume full plumage. It is No. 3492 of the author's collection, and was taken by Mr. Atkins at the point indicated on August 16, 1886.

I have also before me two immature female birds taken at Key West by Mr. Atkins on October 8 and 9, 1887. The eyes of the female birds are recorded on the labels as *gray* and those of the male as light orange. Feet and legs of all, dark red.

Mr. Atkins writes me that the species is quite common at Key West.

The record from Punta Rassa extends the range of this species on the Gulf coast of Florida considerably to the northward — about a hundred and twenty miles—of previous observations.

Buteo fuliginosus. Little Black Hawk.—On the 15th of December, 1886, A. Lechevallier collected, near Cape Romano, Florida, an adult male bird of this species. This bird was procured from that gentleman by Mr. Atkins and was sent by him to me for identification. Concluding it to be the above species, it was submitted to Mr. J. A. Allen, who agreed with me. This is, so far as I am aware, the second record for the United States.

Conurus carolinensis. Carolina Paroquet.—This species, once common in Hillsboro County and in the immediate vicinity of Tarpon Springs, has now apparently disappeared from the region in question, or has at least become very rare. During three seasons' collecting in this region I have not met with it, nor have any specimens been brought to me by any of the many local hunters. The birds are still rather common in parts of Hernando County, but the general opinion of residents seems to be that each year finds them more rare. This does not seem to have come about wholly by persecution, though the birds have been killed in great numbers. The settlement of the country and clearing of land has served to disturb this species very much, as it has *Campephilus principalis.* Both species have absolutely forsaken regions where they were once comparatively common, or even abundant.

Coccyzus minor. Mangrove Cuckoo.—I have before me an individual of this species, taken near Tampa by Mr. Stuart, and the record of another observed on South Anclote Key, May 20, 1887.

The species, though not nearly so common, seems to have a range on the Gulf coast of Florida coextensive with that of *Vireo altiloquus barbatulus*, to which reference will be made further on.

Campephilus principalis. Ivory-billed Woodpecker. — The following account of the nest and first plumage of this species was made by the writer near Tarpon Springs, on March 17, 1887: "To-day found nest of Ivory-billed Woodpecker, and obtained both parent birds and the single young bird which was the occupant of the nest. The cavity for the nest was dug in a large cypress tree, in the midst of a dense swamp, and was forty-one feet from the ground. The opening was oval in shape, being three and one half inches wide and four and a half inches high. The same cavity had apparently been used before for a nesting place; it was cylindrical in shape and a little more than fourteen inches deep. The young bird in the nest was a female, and though one-third grown had *not yet opened its eyes.* The feathers of the first plumage were apparent, beginning to cover the down, and were the same in coloration as those of the adult female bird."

These birds, I am told by all old residents, were once very common in this region. But they are now comparatively rare and very shy. The same day that the nest was found eleven were counted in the swamp in question, sometimes four or five being in sight at once. The three spoken of were all that were obtained, the adults being the parents of the young female bird.

Chordeiles virginianus chapmani. Chapman's Nighthawk. — There are before me both the eggs and one young bird in the down, of this subspecies. The bird was taken, together with the parents, on June 17, 1887, near Tarpon Springs, by Mr. W. S. Dickinson, at that time my assistant. The young bird is apparently five or six days old. The down is dirty white beneath, and on all other parts is the same dirty white mixed with spots of black, giving the bird an appearance above not unlike the young of *Ægialitis wilsonia*, save that the down is longer. The egg is very similar in color and markings to that of *C. virginianus*, and measures 1.20 × .90 inches.

Icterus spurius. Orchard Oriole. — A rather common migrant on the west coast of Florida in the vicinity of Tarpon Springs, appearing from the 5th to the 25th of April. The males are in full song, but I have no later record of the species than those given above, and do not think it breeds here.

Chondestes grammacus. Lark Sparrow.—The records previously given (see Auk, Vol. IV, No. 2, p. 133) are now supplemented by an adult female taken by Mr. J. W. Atkins, at Key West, on October 3, 1887, and a single bird observed at Tarpon Springs by the writer on November 2, 1887. The species is probably a rare regular migrant and winter resident in the southwestern portion of Florida.

Peucæa æstivalis. Pine-Woods Sparrow.— Occurs abundantly as a common resident, breeding about Tarpon Springs.

Peucæa æstivalis bachmanii. Bachman's Sparrow.—Occurs as a rare bird in the breeding season, but not uncommon in early fall and winter about Tarpon Springs.

Vireo altiloquus barbatulus. Black-whiskered Vireo.—A common migrant, and breeds in numbers on all of the mangrove keys of the west coast of Florida, as far north at least as the mouth of the Anclote River.

Mr. Dickinson obtained late in May a series of twelve individuals of this species on the South Anclote River, near Tarpon Springs, which is now in the writer's collection. The birds arrive here about May 10-15, and though Mr. Dickinson was unable to find them breeding, he saw old nests of the preceding year which appeared to have been built by this bird. They probably build early in June, at which time the gentleman in question was unable to continue his investigations.

The species seems to be confined almost exclusively to the mangrove keys, and is very difficult to obtain, even when seemingly plentiful, as they are wary and shy, and the cover to which they resort is dense and impenetrable. I have only two records of their occurrence on the mainland.

Vireo noveboracensis maynardi. KEY WEST VIREO.—Mr. Atkins has found this form quite abundant at Key West, and has kindly sent me a series of nine specimens and two nests containing eggs. Two of the nine birds were collected at Punta Rassa and are apparently the same as the seven from Key West.

The nests are very like those of the true White-eyed Vireo, and the eggs similar though a little larger.

Helinaia swainsonii. SWAINSON'S WARBLER.—Mr. Atkins has collected on the island of Key West only one fall season, and it seems that Swainson's Warbler is not an uncommon migrant at that point. On Sept. 20, 1887, he took three males of this species.

Helminthophila bachmanii. BACHMAN'S WARBLER.—Before me is the Bachman's Warbler referred to in 'The Auk' for October, 1887, p. 348. It is without doubt an adult female, and is very like the specimens taken near New Orleans, save that the black of the breast is more suffused with yellow.

Helminthophila peregrina. TENNESSEE WARBLER.—On October 5 Mr. Atkins collected at Key West a male bird, young of the year, of this species, and on the succeeding day a female, also young of the year. I have not found the species on the Gulf coast of Florida.

Dendroica tigrina. CAPE MAY WARBLER.—Mr. Atkins finds this bird a rather common migrant, both in the spring and fall, at both Punta Rassa and Key West. I have taken it on a single occasion in spring near Tarpon Springs. Mr. Atkins's spring birds taken at Key West were obtained from April 11 till May 5, and in the fall they occur in the first three weeks of October.

Geothlypis agilis. CONNECTICUT WARBLER.—On May 24, 1887, one of my collectors took, on the South Anclote Key, near Tarpon Springs, an adult female Connecticut Warbler. This bird is No. 3443 of my Florida collection.

Thryothorus ludovicianus miamensis. FLORIDA WREN. — This subspecies, which the latest authority gives as being restricted to "Southeastern Florida," is the representative of the Carolina Wren found at Tarpon Springs, where, and also southward on the Gulf coast of Florida, it is common.

Cistothorus marianæ, sp. nov. MARIAN'S MARSH WREN.

To an apparently undescribed species of Marsh Wren, lately discovered in the salt water marshes at the mouth of the Anclote River, Hillsboro County, Florida, I propose to give the above name, after my wife, Marian J. Scott.

Before me is a series of fourteen birds on which the species is based, No. 4595, ♂ *ad.*, Tarpon Springs, Fla., 6th January, 1888, and No. 4594, ♀ *ad.*, Tarpon Springs, Fla., 5th January, 1888, being selected as the types of the species.*

Above olive brown, having in rare cases a slightly rufous tinge. The black area of the back much as in *C. palustris*, but not so clearly defined, and the white streaks in this area not so numerous or pronounced. Rump and upper tail-coverts with *narrow* transverse *bars* of *black*, or darker olive brown. The olive of the upper parts usually showing on the top of the head, as a median line, which is sometimes a quarter of an inch wide. On each side of this, darker brown or black, like the patch on the back. A superciliary stripe of white and dark brown feathers. Area in front of eye dark. Below white on belly and throat; flanks and sides olive, lighter than that above, and barred with darker olive or brown. The coloration of the flanks and sides usually spreads over the breast, which in many cases is dotted with small triangular black blotches. Lower tail-coverts ashy or dirty white, *barred broadly* and conspicuously with black or deep olive brown. Tail dark with lighter barring of deep ash, the bars being rarely continuous. Wings dark olive brown with darker markings. Average measurements of males: Length, 4.85; wing, 1.80; tail, 1.70; exposed culmen, .50. The average measurements of the females are appreciably less.

Iris hazel brown; bill above dark seal brown, the lower mandible being lighter at and near its base.

The great difference between this species and *palustris* is in the conspicuous barring of the upper and under tail-coverts and the feathers of the flanks, and olive instead of rufous brown coloring throughout, with the much darker coloration of underparts. I may state that with this series of birds I have taken three *palustris*, which are entirely similar to those of the northern marshes.

The new bird is quite common on all the salt marshes of this immediate vicinity (Tarpon Springs), and probably all along the west coast of Florida as far north as Cedar Keys, where it is known to occur. It is probably resident and breeds, though of this I have as yet no positive knowledge.

The extent of the dark color on the underparts varies considerably, and I have two individuals that show scarcely a trace of whitish beneath, either on throat or belly.

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* [Mr. Scott has kindly presented these types to the American Museum of Natural History, New York City.—J. A. A.]

RECENT LITERATURE.

Chamberlain's Canadian Birds.*— This is not among the least of recent indications of activity of Canadian workers. It is more extensive in its scope than Mr. McIlwraith's treatise, including a systematic annotated list of all the birds of North America, north of the United States and British Boundary, excepting Alaska. Considerably more than *one-half* of North American Birds are found within these broad limits, and Mr. Chamberlain has occasion to treat 556 species. These are arranged and named according to the A. O. U. Code and Check-List, and quite fully annotated from all the information available to the author, so far as their geographical distribution is concerned. Without any other biographical matter, it makes a handsome volume of convenient size, invaluable for ready reference. In paper and typography, it is decidedly the best-looking bird-book that has reached us from 'over the line,' though not quite free from misprints, and by some oversight repeatedly giving generic names with a lower-case initial letter. But these are trifling defects, of no weight in estimating the value of the treatise. It at once takes a place of its own, distinct from Mr. McIlwraith's; and the two together very fairly represent what Canada has to offer us at present in respect of ornithology.

In his preface Mr. Chamberlain takes occasion to pointedly comment upon the backwardness in coming forward of the Canadian authorities in the matter of ornithology. His strictures should have great weight because they are simply true, and because they are said by one who has earned the right to speak by his own talents, industry and enterprise. We heartily welcome the successful outcome of the author's researches thus far, and wish him all favorable conditions for their further prosecution.—E. C.

Seebohm's 'Geographical Distribution of the Charadriidæ.'—Mr. Seebohm's book on the 'Charadriidæ,'† or 'Plovers, Sandpipers, Snipes, and their Allies,' is a large quarto, illustrated with twenty-one beautifully colored plates of species hitherto unfigured or badly figured; in typographical execution it is almost faultless, forming altogether a sumptuous specimen of book-making. The text abounds in beautiful cuts, the greater part being head-pieces or illustrations of structural details.

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* A Catalogue | of | Canadian Birds, | with | Notes on the Distribution of the Species. | By | Montague Chamberlain. | — | Saint John, N. B. | J & A. McMillan, 98 Prince William Street. | 1887. | 1 vol. cloth, sm. 4to paper, 8vo typebed, title and pp. i—vi, 1 l., 1-143.

† The | Geographical Distribution | of the Family | Charadriidæ | or the | Plovers, Sandpipers, Snipes, and their Allies. | By | Henry Seebohm | author of "Siberia in Europe," "Siberia in Asia," "Catalogue of the Birds in the British Museum" (Vol. 5), | "A history of British Birds, with coloured Illustrations of their Eggs," etc. | [Vignette—group of Avocets.] London: | Henry Sothern & Co., 136 Strand, W. C. and 36 Piccadilly, W.; | Manchester, 49, Cross Street.—No date. 4to. pp. xxix, 524, pll. xxi, numerous cuts in the text. On the back-title of the cover is the date, 1888.

He states that the work is "not a monograph," being limited to the treatment of two topics, the geographical distribution of the species and their mutual relationship, one of his chief objects being to point out what appeared to him "to be errors in their classification." Judged from this latter standpoint, we fear Mr. Seebohm's labors will not be received with much favor by the generality of his contemporaries. He further says the work "treats only of the classification of the family Charadriidæ into subfamilies, genera, subgenera, species, and sub-species. I propose for the most part to confine the descriptions of each of these groups of individuals to those characters which are diagnostic, and to make the geographical distribution of each species the *pièce de résistance* of my bill of fare" (p. 51).

As will be seen by the title, Mr. Seebohm's 'family Charadriidæ' includes birds modern ornithologists usually arrange in several families; while his classification of the genera presents strikingly original allocations, the classification here adopted being essentially that followed in the same author's 'History of British Birds.' He sets out with excellent intentions, and his work, aside from matters of nomenclature and classification, is based on sound principles and broad philosophic views. He not only nominally accepts the doctrine of evolution, but adopts it unreservedly as the basis of his work, accepting, withont flinching, its "inevitable consequences." He recognizes with unstinted praise the "progressive tendency of thought" among American ornithologists, with whom "the recognition of sub-species is as much a matter of course as the admission that many species, even amongst those whose geographical distribution is very wide, show no tendency to split up into local races" (p. v). He accepts the tests we long since adopted on this side the water as the criterion for species and subspecies, namely, the non-intergradation of the former, and the intergradation of the latter, For subspecies, however, he recognizes what he terms a geographical boundary. "Whatever individual variation be found within the range of a species, if it be not also capable of being defined geographically I do not regard it of subspecific value" (p. v.). He reiterates his well-known views on the subject of what are and what are not generic characters;* but the results to which they give rise will not, we fear, gain for his views very general acceptance. In his somewhat extended 'Preface' he announces or summarizes views he presents at greater length in special chapters. Following a very full table of 'Contents' is a 'Systematic Index and Diagnosis (pp. xv–xxviii), in which he gives the 'diagnostic characters' of his groups, from subfamily to subspecies, and in which an attempt is made to indicate the strictly distinctive features of each. 'Chapter I' is devoted to the 'Classification of Birds,' which he arranges in five orders, namely: I. Anseriformes ("Owls, Eagles, Herons, Flamingoes, Ducks, Cormorants, and their allies"). II. Cuculiformes ("Goatsuckers, Cuckoos, Woodpeckers, Parrots, Kingfishers, Hornbills, Rollers, Toucans, Jacamars, Pigeons, and their allies"). III. Passeriformes ("Passerine Birds, Humming-Birds, Swifts, and their allies"). IV. Charadriiformes ("Penguins, Divers,

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* On this point, see Bull. Nutt. Orn. Club, VIII, 1883, p. 100.

Grebes, Auks, Gulls, Petrels, Plovers, Snipes, Cranes, Rails, Pheasants, Tinamous, and their allies"). V. Struthioformes ("Ostriches, Cassowaries, Apteryx, and their allies"). The Charadriiformes are divided into seven suborders, of which the fourth, or 'Limicolæ,' is in turn divided into eight families, as follows: Pteroclidæ, Turnicidæ, Thinocoridæ, Dromadidæ, Charadriidæ, Otididæ, Parridæ, and Chionidæ; the 'Charadriidæ,' (= Limicolæ, 'auct. plur.') with the limits above indicated, forming the subject of the present work. He considers it "absurd" to create orders for fossil birds, as some ornithologists have done, apparently because we know so few "links" of the "endless chain!"

Passing for the present this certainly very 'original' scheme of classification without further comment, we come to 'Chapter II. The Evolution of Birds.' This chapter (pp. 1-15) we commend to the reader as a thoroughly philosophic and sensible presentation of the subject, — one of the best, from our point of view, we have ever seen, and to nearly every line of which we give hearty assent. It is a terse and able discussion of many moot points, which Mr. Seebohm, we do not hesitate to say, has treated in a masterly way. 'Chapter III. The Differentiation of Species' (pp. 16-24), is in the same line, and inspires our equally hearty indorsement. In fact, we have long held substantially the views here so well expressed and defended, and on many of the points have, on different occasions, written to the same effect, particularly in relation to so-called 'natural selection.' There is much in these two chapters we would gladly quote did space permit.

'Chapter IV. The Glacial Epoch' (pp. 25-32), is devoted to an explanation of the origin, dispersion, and present geographical distribution of the various forms of the 'Charadriidæ,' through the influence of successive periods of glaciation; in general the views here promulgated have much in their favor. 'Chapter V. Migration' (pp. 33-50) contains much that is instructive and suggestive, though some of his conclusions may be open to question.

'Chapter VI. The Paradise of the Charadriidæ' (pp. 51-58) treats at some length of the habits of these birds in their Arctic breeding-grounds, and graphically describes the physical features and the climate of the region, largely from personal experience, where so many of the northern species find their summer home.

'Chapter VII. Zoölogical Regions,' is based entirely upon the birds especially under consideration. The 'Regions'—which "have nothing whatever to do" with "the Zoölogical Regions of Sclater and others,"—three in number, are strictly climatic belts, as follows: First, an 'Arctic Region,' situated between the July isothermals of 60° and 40°. Second, a 'Tropical Region,' limited by the isothermals for July (north of the equator) and January (south of the equator) of 77°. Third, a 'Temperate Region,' divided into two by the last named region — a north Temperate and a south Temperate, the former bounded by the July isothermals of 77° and 60°, and the latter by the corresponding isothermals for January. Were the whole 'suborder Limicolæ' considered, Mr. Seebohm says "we should be compelled to recognize an Anarctic Region," which would be characterized by the families Chionidæ and Thinocoridæ, and which "appears to be also the centre of dispersal of two suborders—the Procellaridæ and the Impennes; so that it must be regarded as a very important Region when the distribution of the whole order Charadriiformes is considered." He does not think it necessary, however, to recognize it for the 'Charadriidæ,' since so few species of this group visit it for breeding purposes. A map illustrates the regions recognized.

'Chapter VIII. On Subspecific Forms' (pp. 62-65), is thoroughly in harmony with American notions on this subject, in which Mr. Seebohm rather pointedly contrasts what he terms the "clearheadedness of American ornithologists on this point" with the "conservative views of British ornithologists." "It is only doing scant justice," he says, "to American ornithologists to admit that to them belongs the credit of having for the first time formed a clear conception of the difference between a species and a subspecies, and of having at once recognized the fact in a scientific manner in their nomenclature. . . . The primary truth, the recognition of which in some way or other is of vital importance to a clear understanding of the facts of Zoölogy, is that species in the process of differentiation do exist in considerable numbers. . . . The fact of the existence of species which consist of two or more typical forms which are connected together by an unbroken series of intermediate forms between the geographically separated extremes . . . . is the most important ornithological fact which has been discovered during the last half-century. It is a fact which has been clearly recognized by American ornithologists, and its tardy or doubtful recognition by British writers on birds is one of the psychological puzzles that are very difficult to believe, much less to explain" (pp. 64, 65).

Chapters IX-XXX (pp. 66-506), are devoted to the general subject, wherein the 'Charadriidæ,' from 'family' down to subspecies, are treated with special reference to their classification and geographical distribution. His descriptions of the several groups are brief, but are, it is claimed, diagnostic. Keys are provided for the species and genera, which we trust will prove so much more than usually servicable as to warrant the rather sharp critisism our author bestows on the similar attempts of some of his predecessors. His references are generally limited to the citations of synonyms, and to a few works treating specially of the habits and eggs of the species or subspecies, or giving figures of the birds or their eggs. Trinomials are consistently employed, but the law of priority is, as usual with Mr. Seebohm, altogether ignored. There is little formal reference to the 'auctorum plurimorum' rule,* but in the selection of names, particularly for subspecies, he is governed on some occasions by this principle and in others by his personal preferences. A foot-note on page 100, under *Charadrius fulvus americanus*, affords a case in point: "Of the three names, *americanus*, *dominicus*, and *virginicus* [applied to the American Golden Plover], the first is the most expressive, the second is the oldest, and the third has been most used. I adopt the first, on the ground that in accepting a trinominal nomenclature as a necessary evil an ornithologist has a perfect right to dictate the terms on which he accepts it. The only way to prevent the indefinite use of trinomials is to make them temporary!" Such vagaries are beyond criticism.

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* See Auk, II, 1885, p. 89.

Mr. Seebohm's classification, as regards his subfamilies and genera, is simply unique — emphatically Seebohmian. He tells us that one of his objects in writing a book on Limicoline birds was to correct what appeared to him "to be errors in their classification," and to help clear up and set in order the 'chaos' of the present phase of the subject, consequent upon passing from "the artificial system of the last century to the natural system, which may possibly be discovered in the next." A glance at his 'Systematic Index and Diagnoses' (pp. xv-xxviii) is sufficient to show that a more arbitrary or 'artificial' system would be hard to find. The absence or presence of a membrane connecting the base of the toes, or the situation of the nostril in the basal fourth of the bill or beyond it, determine alike the composition of his 'subfamilies' and the relationship of his genera,—characters of, at best, exceedingly slight importance, and variable in even strictly congeneric species, otherwise most closely allied. Such superficial characters being allowed to outweigh others of much greater importance, including those more or less affecting the general structure and habits of the species, it is not surprising that *Hæmatopus* is placed in his subfamily 'Totaninæ,' and *Strepsilas* in his subfamily Scolopacinæ, next to *Tringa*. As consistency is not one of Mr. Seebohm's leading characteristics, it is quite natural to read, in the face of this arrangement, "The Turnstones are so nearly allied to the Plovers that it is doubtful whether they ought to be separated from them" (p. 407). We find the Turnstones, however, separated from the Plovers, in Mr. Seebohm's book, by all of the strictly Totanine forms! The genera *Macrorhamphus* and *Micropalama* are included in his 'genus' *Ereunetes!*

A large part of the text is devoted to the geographical distribution of the species and higher groups, and to speculation as to their ancestral history and genetic relations. Many of his hypotheses are probable, though resting not unfrequently on a very airy groundwork. Mr. Seebohm evidently has not made himself thoroughly familiar with all that has been written by even the later and most trustworthy authorities on some of the points he treats with great positiveness, and did space permit it would be easy to give numerous instances of oversight or carelessness. The A. O. U. Check-List of North American Birds is cited as "Coues & Co. Check-List N. Amer. Birds,"—with just what intent is not obvious.

Mr. Seebohm's material for the basis of his work seems to have been extensive and of excellent quality, he having purchased for the purpose the well-known Harting, Shelley, and Swinhoe collections, and having had access to the resources of the British Museum. He recognizes 192 species and 40 subspecies, which he arranges in 19 genera and 3 subfamilies. Despite what we have felt called upon to say in criticism of the descriptive portion of the work, the author has brought together a vast amount of thoroughly trustworthy and interesting information about the birds he treats, and the work will prove of great usefulness as a handbook for this extensive group of birds. We regret that certain idiosyncrasies of classification and nomenclature prevent our according to the work as a whole the same high praise we so gladly give to the introductory chapters, which show that his ideas on many points have wonderfully clarified since he wrote the 'Introduction' to his 'History of British Birds,' some five years ago.—J. A. A.

Ridgway on New or Little-known American Birds.—In the 'Proceedings' of the U. S. National Museum, Mr. Ridgway has published during the last few months descriptions of a number of new species and subspecies of American birds, with notes on others little known, as follows:

(1) *Cotinga ridgwayi* Zeledon MS., from Western Costa Rica.* The species is allied to *C. amabalis*, of which it is the western representative. (2) *Spindalis zena townsendi*,† from Abaco Island, Bahamas, collected by Mr. Charles W. Townsend. (3) He has also described the female of *Carpodectes antoniæ* Zeledon.‡ (4) *Porzana alfari*,§ from Costa Rica, allied to *C. albigularis* Lawr. (5) *Callipepla elegans bensoni* from Campos, Sonora,‖ based on five specimens collected by Lieut. H. C. Benson, U. S. A. (6) *Picolaptes rikeri* Ridgw. is made the type of a new genus *Berlepschia*.¶ (7) *Phacellodomus inornatus* from Venezuela,** and allied to *P. frontalis*. (8) *Megascops vermiculatus*, from Costa Rica, and *Megascops hastatus*, from Mazatlan.†† (9) *Muscisaxicola occipitalis*, from Lake Titicaca, Peru.‡‡ (10) In a paper on *Phrygilus gayi* and allied species, §§ *P. punensis* is described as new, and *P. atriceps*, *P. gayi*, and *P. formosus* are discussed at length, each being described in detail. He endeavors to show "that *Emberiza aldunatei* Gay is a pure synonym of *Fringilla gayi* Eyd. & Gerv., and that *Phry-*

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* Description of a New Species of *Cotinga* from the Pacific Coast of Costa Rica. By Robert Ridgway. Proc. U. S. Nat. Mus., 1887, pp. 1, 2 (April 25, 1887).

† Description of a New Form of *Spindalis zena* from the Bahamas. Ibid., p. 3.

‡ Description of the adult female of *Carpodectes antoniæ* Zeledon; with critical remarks, notes on habits, etc., by José C. Zeledon. Ibid., p. 20 (April 25, 1887).

§ Description of a New Species of *Porzana* from Costa Rica. Ibid., p. 111.

‖ Description of a new Plumed Partridge from Sonora. Ibid., pp. 148-150 (July 2, 1887).—No allusion is here made to its prior description in 'Forest and Stream' (Vol. XXVIII, No. 6, p. 106, March 3, 1887. See Auk, IV, p. 156, April, 1887).

¶ Description of a New Genus of Dendrocolaptine Bird from the Lower Amazon. Ibid., p. 151.

** Description of a New Species of *Phacellodomus* from Venezuela. Ibid., p. 152.

†† Description of two New Species of Kaup's Genus *Megascops*. Ibid., pp. 267, 268 (Aug. 1, 1887).

‡‡ Description of a New *Muscisaxicola* from Lake Titicaca, Peru. Ibid., p. 430 (Nov. 3, 1887).

§§ On *Phrygilus gayi* (Eyd. & Gerv.) and Allied Species, Ibid., pp. 431-435 (Nov. 3, 1887).

gilus formosus (Gould) is the proper name for the smaller and brighter colored species which Messrs. Sclater and Salvin, and others following them, have considered to be the true *P gayi*."

In addition to the foregoing, Mr. Ridgway has published (11) 'A Review of the Genus *Dendrocincla* Gray,'* of which 12 species are recognized, three being described as new, namely, *D. lafresnayei*, *D. rufo-olivacea*, and *D. castanoptera*. A key to the species is given, followed by the synonymy of each, and critical remarks.

Ridgway on Wuerdemann's Heron. — Mr. Ridgway gives the results of an examination of eight specimens of *Ardea wuerdemanni*,† which throw much light on the character and status of a bird so little known two years ago that it was assigned to the 'Hypothetical' section of the A. O. U. Check-List. After describing each example in detail (one of which "is clearly intermediate between *A. wuerdemanni* and *A. wardi*, and may possibly be a bybrid between the two"), he states that "the characters of *A. wuerdemanni* are not only very pronounced but fairly constant," and thus summarizes them: "(1) Head entirely white, excepting (usually) dusky or blackish streaks on forehead or median portion of the crown, but even these sometimes absent. (2) Shoulder-tufts or epaulets broadly striped with white, and with black portions of the feathers sometimes partially replaced by rusty. (3) Lower parts chiefly white, sometimes only the breast being streaked with dusky. (4) Lowermost middle (and sometimes greater) wing-coverts marked with a median streak of white (this sometimes occupying a considerable portion of the outer web). (5) Outer pair of tail-feathers with a well-defined wedge-shaped mark occupying basal half (approximately) of outer web." He concludes that *A wuerdemanni* "would seem to be a permanent form, however, and, if not a color-phase of *A. occidentalis*, is probably a distinct species."—J. A. A.

Ridgway on the Breeding of Trogon ambiguus in Arizona. — Mr. Ridgway describes a specimen of this species,‡ in first plumage, taken by Lieut. H. C. Benson, U. S. A., in the Huachuca Mountains, Arizona, August 24, 1885. This not only proves the existence of a Trogon in Arizona, but that it breeds there. This is probably the species referred to by Mr. W. E. D. Scott, in 'The Auk' for October, 1886 (Vol. III, p. 425), as having been reported to him as occurring in the Catalina Mountains. The species is thus now positively added to the list of Arizona birds. —J. A. A.

Stejneger on Japanese Birds. — In describing a new species of *Turdus* (*T. jouyi*) Dr. Stejneger gives a synopsis§ of the Japanese species of the genus, preliminary to a fuller account to be published later. He has also published a review of the Japanese Ibises, Storks, and Herons,[*] treating the subject in great detail, but with not wholly satisfactory results, owing to the scanty material available for study. Two new subgenera (*Nannocnus*, p. 291, type *Ardetta eurhythma* Swinh.; *Phoyx*, p. 311, type *Ardea purpurea* Linn.) are characterized, and the name *Nyctanassa* (p. 295) is substituted for *Nyctherodius* Reich., which is antedated by *Nicterodius* Macgill., = *Nycticorax* Forster. A Heron, allied to *Demiegretta jugularis* Wagl., is described (p. 300) as *D. ringeri*, sp. n.

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* Ibid., pp. 488-497 (Jan. 6, 1888).

† Notes on *Ardea wuerdemanni*. Ibid., 1887, pp. 112-115 (July 2, 1887).

‡ *Trogon ambiguus* breeding in Arizona. Ibid., p. 147.

§ Review of Japanese Birds. By Leonhard Stejneger. IV. Synopsis of the Genus *Turdus*. Proc. U. S. Nat. Mus., 1887, pp. 4, 5 (April 25, 1887).

The sixth instalment of Dr. Stejneger's 'Review of Japanese Birds' treats of the Pigeons,[†] the species recognized as Japanese numbering 12, the characters and synonymy of which are discussed at length.

Dr. Stejneger also has a paper on the systematic name of the Kamtschatkan and Japanese Carrion Crow,[‡] in correction of an error in his 'Results of Ornithological Explorations in Kamtschatka and the Commander Islands,' wherein he referred the species to the 'Black Hill Crow' of India (*Corvus levaillantii* Less.). The species belongs to the *C. corone* group, and should stand as *Corvus corone orientalis* (Eversm.).

Additional collections of birds from the Liu Kiu Islands[§] enable Dr. Stejneger to throw further light upon the ornis of this interesting group of islands, the new material adding 14 species to the 63 previously known from there, making 77 in all, 12 of which are peculiar to these islands. Besides extended technical annotations, four species are described as new, namely, *Porzana phæopyga*, *Euryzona sepiaria*, *Turtur stimpsoni*, and *Passer montanus saturatus*. A tabular catalogue of the species, giving references to the previous papers on the subject, concludes the article.

He also gives an annotated list of birds collected by Mr. M. Namiye, in the Islands of Idzu,[||] situated just south of Yokohama. These outlying Japanese islands were previously wholly unexplored, and therefore of special interest. The species obtained are 22 in number, and include a Thrush (*Turdus celænops*) new to science. — J. A. A.

Stejneger on Hawaiian Birds.[¶]— Several valuable collections of birds received at the U. S. National Museum from Mr. Valdemar Knudsen, made by him in the island of Kauai, Hawaiian Archipelago, enable Dr. Stejneger to give a very full account of the ornithology of a hitherto little-known and exceedingly interesting region. Besides the full synonymy and copious technical annotations, one genus and six species are described as new, as follows: (1) *Gallinula galeata sandvicensis*, (2) *Himantopus knudsoni*, (3) *Chasiempsis dolei*, (4) *Phæornis myiadestina*, (5) *Himatione parva*, and (6) *Oreomyza* (gen. nov.) *bairdi*.

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[*] Review of Japanese Birds. V. Ibises, Storks, and Herons. Proc. U. S. Nat. Mus., 1887, pp. 271-319 (Aug. 1, 1887).

[†] Review of Japanese Birds. VI. The Pigeons. Ibid., pp. 416-429, pl. xxii (Nov. 3, 1887).

[‡] On the systematic name of the Kamtschatkan and Japanese Carrion Crow. Ibid., pp. 320, 321 (Aug. 3, 1887).

[§] Further Contributions to the Avifauna of the Liu Kiu Islands, Japan, with Descriptions of New Species. Ibid., pp. 391-415, pll. xxi, xxii (Nov. 3, 1888).

[||] On a Collection of Birds made by Mr. M. Namiye, in the Islands of Idzu, Japan. Ibid., pp. 482-487 (Jan. 6, 1888).

[¶] Birds of Kauai Island, Hawaiian Archipelago, collected by Mr. Valdemar Knudsen with Descriptions of New Species. Ibid., pp. 75-102 (May 17, July 2, 1887).

In a later paper* he adds to the list *Psittirostra psittacea*, two specimens of which are described, and the question is raised as to whether there may not be two species of *Psittirostra* in the Sandwich Islands, in view of Temminck's description and figure differing from the specimens here described, etc. — J. A. A.

Stejneger on Birds of the Commander Islands.† — Additional material received at the National Museum since the publication of his 'Results of Ornithological Explorations in Kamtschatka and the Commander Islands' has led Dr. Stejneger to prepare the present 'Catalogue,' the 'conclusions' to be drawn from this further consideration of the subject being reserved for a subsequent paper. Considerable space is given to a discussion of the status of *Larus schistisagus* and its relationship to *L. affinis*, with the conclusion that the two species are unquestionably distinct. Under *Stercorarius parasiticus* the probable moulting of the 'nasal cuirass' in the *Stercorarii* is considered, the indication being that "the process of shedding is as regular in the *Stercorarii* as in the Puffins."

Under *Ægialitis mongola* several pages are devoted to showing that *Æ. pyrrhothorax* is a synonym of *Æ. mongola*. There are also extended technical notes on *Actodromas couesi*, *Limosa limosa melanuroides*, *Numenius cyanopus*, *Falco rusticolus*, and *?Butalis griseisticta*. In all 143 species are commented upon. — J. A. A.

Stejneger on Palæarctic Bullfinches. — In a paper‡ of seven pages Dr. Stejneger reviews the species of *Pyrrhula*, treating of the following: (1) *P. cassini* (the type specimen of which is affirmed to be a female instead of a male), later named *P. cineracea* by Cabanis; (2) *Pyrrhula pyrrhula*, or common European Bullfinch, which is divided into the two subspecies, *europæa* (Vieill.) and *kamtschatica* (Tacz.); (3) *P. griseiventris*; and (4) *P. kurilensis*. Their synonymy is given, and a considerable series of specimens of *P. griseiventris* is described and discussed, with the result of dismissing *P. rosacea* Seebohm as a pure synonym of *P. griseiventris*, in agreement with Blakiston and Jouy. — J. A. A.

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* Notes on *Psittirostra psittacea* from Kauai, Hawaiian Islands. Proc. U. S. Nat. Mus., 1887, pp. 389, 390 (Nov. 3, 1887.)

† Contributions to the Natural History of the Commander Islands. No. 7. — Revised and Annotated Catalogue of the Birds inhabiting the Commander Islands. Proc. U. S. Nat. Mus., 1887, pp. 117-145 with three plates (July 2, 1887).

‡ Notes on the Northern Palæarctic Bullfinches. Proc. U. S. Nat. Mus., 1887, pp. 103-110 (July 2, 1887).

Lucas on the Osteology of the Spotted Tinamou. — These 'Notes' * point out briefly various osteological differences between the present species and some of its allies, as described and figured by Parker. Figures are given of the skull and pelvis. — J. A. A.

Shufeldt on Bird Skulls and Sterna collected by Dr. Streets. † — This report relates to the skulls and sterna of 13 species, mostly water-fowl. They include such various types as *Urinator*, *Daption*, *Pelecanoides*, *Cepphus*, *Sula*, *Larus*, *Chlœphaga*, *Ardea*, *Nycticorax*, *Geococcyx*, and *Corvus*. The sternum of *Daption capensis*, with the shoulder girdle *in situ*, is figured; also the skulls of *Chlœphaga poliocephala*, *Nycticorax nycticorax nævius*, and *Corvus corax sinuatus*. — J. A. A.

Chamberlain's 'Systematic Table of Canadian Birds.' — We are in receipt of a second work by Mr. Montague Chamberlain on the birds of Canada. This, as the title‡ indicates, is a tabular list of the birds of Canada, as given in the same authors' 'Catalogue of Canadian birds.' The 'Systematic Table' is thus a 'check-list' and a 'table of higher groups' combined. The names of orders and suborders form subheadings, while the names of families, subfamilies, genera, subgenera, species, and subspecies, English names, and current numbers are arranged in parallel columns, each species or subspecies thus occupying a line running across the page. This arrangement requires a very broad page, but will doubtless subserve a useful purpose.

In the 'Introduction' to this work the author gives a condensed sketch of the history of American ornithology, particularly since 1859. He also notes the tendency to extreme conservatism respecting species and subspecies, etc., among Canadian naturalists as compared with those of the United States, a conservatism obviously resulting from a difference of attitude respecting the "evolution theory of the origin of species." This theory, Mr. Chamberlain says, while accepted by the greater part "of the scientific men of the United States .... as an established fact, rather than a mere hypothesis," is considered "by Canadian students, as a rule, as 'not proven.'" This state of affairs seems to have suggested "that an association of Canadian ornithologists be organized, and that this society undertake the formulation of a system of classification and nomenclature which shall more truly reflect the ideas on the subject which are current in the Dominion." Mr. Chamberlain, while conceding that the formation of such an association might greatly promote the advancement of ornithology in Canada, very promptly and effectually disposes of the rest of the scheme as impracticable and mischievous. He states, in very plain terms, that Canada has not at present the means for undertaking such a task, having neither ornithologists equipped with the requisite experience and technical knowledge of the subject, nor collections sufficiently large to serve as anything like an adequate basis for such work. He very rudely pricks the bubble of Canadian assumption by stating some very plain facts, namely: "If all the bird skins in the Dominion were combined they would not make a good working collection. In no one Museum in the country are the birds of even a small locality well represented. There are a few creditable private collections, but none of these contain a sufficient series of skins to show the variations in plumage of all the species—the variations of sex and age and seasons, to say nothing of individual and geographical variation." This is not said unkindly, nor with a view so much to expose the weakness of Canadian ornithological resources, as to arouse greater activity, and particularly to stimulate interest in ornithology and kindred sciences in Government circles, in connection with the present Canadian Geological Survey. While this Survey has done admirable work in many departments of science, and has earned an enviable reputation for the originality and thoroughness of its work, it has given little attention to zoölogy. This seems primarily due to an impression, rather generally entertained across the border, that the animals of Canada are already well-known. We trust that Mr. Chamberlain's plain statements, his appeals, and his example of energetic and intelligent activity in his favorite fields of ornithology and mammalogy, will arouse general interest and lead to fruitful results.—J. A. A.

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* Notes on the Osteology of the Spotted Tinamou (*Nothura maculosa*). By Frederic A. Lucas. Proc. U. S. Nat. Mus., 1887, pp. 157, 158 (July 2, 1887).

† On a Collection of Birds' Sterna and Skulls, collected by Dr. Thomas H. Streets, U. S. Navy. By Dr. R. W. Shufeldt. Proc. U. S. Nat. Mus., pp. 376-387 (Sept. 27 to Nov. 3, 1887).

‡ A Systematic Table | of | Canadian Birds. | By | Montague Chamberlain. | Published for the Author. | St. John, N. B. | 1888. Fol. pp. 14.

Sclater and Hudson's 'Argentine Ornithology.'*—A hand-book of the birds of any portion of South America is sure to meet a 'long-felt want,' and when undertaken by authors so well fitted for the task as in the present case is to be especially welcomed. Dr. Sclater's long familiarity with 'Neotropical' birds renders him eminently qualified for the technical portion of the work; while Mr. Hudson's long residence in the Argentine Republic, and his unquestioned ability as an observer, imparts to the biographical part an equal trustworthiness. Rarely more than a page is devoted to a species, 229 species being treated in a space of 208 pages. Some of the more common or better known species are noticed by Mr. Hudson at considerable length, while in other cases there is little more than the technical description. Mr. Barrow's notes on the 'Birds of the Lower Uruguay,' published in this journal, 1883–84, are often quoted at length. References are given to the special literature of the subject. The technical descriptions are brief, rarely occupying more than five to ten lines, and relate generally to the adult plumage only. It is, therefore, what it purports to be, a 'Descriptive Catalogue,' rather than an elaborate treatise, and despite the absence of much that might be desired, did the scope of the work render it admissable, will prove extremely useful as a manual of Argentine ornithology. Ten beautifully colored plates illustrate the first volume, devoted to the Passeres. Volume II, treating the remaining orders, is announced to appear during the present year. — J. A. A.

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* Argentine Ornithology. | A | Descriptive Catalogue | of the | Birds of the Argentine Republic. | By | P. L. Sclater, M. A., Ph.D., F. R. S., Etc. | With Notes on their Habits | by | W. H. Hudson, C. M. Z. S., | late of Buenos Ayres | [Vignette]. The Cariama. | — | Volume I. | — | London: | R. H. Porter, 6 Tenterden Street, W. | 1888. 8vo, pp. i–xv, 1–208, pll. col. i–x.

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GENERAL NOTES.

Æchmophorus occidentalis in Kansas. — I wish to place on record the capture on the Kansas River at this place, on Nov. 3, 1887, of a young male of the Western Grebe, *Æchmophorus occidentalis* (Lawr). It was shot by a colored man, who brought it to me as a curious bird. The species has never before been taken farther east than Manitoba and the Gila River in New Mexico. Its capture here extends its eastward range more than a thousand miles. The following measurements were taken:

Length, 641; extent, 904; wing, 205; outer toe, 84; middle toe, 79; tarsus, 78; culmen, 67; head, 57; gape, 80; height of bill at base, 14.5.

The widening of the river for about two miles by the Lawrence dam affords a specially attractive halting place for numerous waterfowl. Only a few days before this capture Mr. A. L. Bennett shot a specimen of the Surf Scoter (*Oidemia perspicillata* Linn.) at the same place, which thus had the honor of furnishing within one week two new birds for the Kansas list.—F. H. SNOW, *Lawrence, Mass.*

Puffinus borealis at Gardiner's Bay, N. Y.—Stragglers from the large flight of Cory's Shearwaters, which occurred in September and October, 1886, off Gay Head,* Mass., seem to have reached Long Island, N. Y. I recently obtained a specimen taken by Mr. W. W. Worthington, in Gardiner's Bay, Long Island.

This is, I believe, the first recorded specimen from New York.—ARTHUR P. CHADBOURNE, *Cambridge, Mass.*

Eggs of the Ivory Gull (*Gavia alba*).—The National Museum at Washington, D. C., has recently received a set of two eggs, of the rare Ivory Gull (*Gavia alba*). A short description of these may be of interest to the readers of 'The Auk.' These eggs were taken, with seventeen others, at Storöen (Great Island) on the northeast coast of Spitzbergen, in 80° 9′ north latitude, by Captain E. Johannsen, of Tromsö, Norway, who found a small colony of these birds breeding there, and secured a number of the adult and young of this species, as well as the above mentioned number of eggs, *on August 8, 1887*. All the eggs taken contained large embryos, and were on the point of hatching. It is remarkable that birds should nest so late, in such a climate and so near the pole.

Previous to this find, but four eggs of this species were known to science. According to Mr. Henry Seebohm, the distinguished English ornithologist, these are deposited as follows: One egg, obtained by Mc'Clintock, in the Museum of the Royal Dublin Society; two eggs, obtained by Malmgren, are in the Slockholm Museum, and a fourth is in the collection of Mr. Benzon in Copenhagen. Mr. Seebohm describes the specimen in the Dublin Museum as measuring 2.45 inches in length and 1.70 inch in breadth. Ground color buffish olive, and the surface markings, which are distributed over the entire shell, as dark and pale brown, and the underlying markings, which are very large and conspicuous, as violet gray. See 'History of British Birds,' by Henry Seebohm, Vol. III, pp. 337-339.

The two eggs in the National Museum Collection measure 2.36 × 1.76 and 2.26 × 1.67 inches respectively. Their ground color is buffish olive; in one egg, somewhat paler, perhaps more of an olive drab tint. The surface markings, more or less irregularly distributed over the entire egg, vary from clove-brown to bistre. The underlying or shell-markings vary from slate to lilac-gray in tint, and predominate in the larger specimen. In the smaller and darker one, both styles of markings are about equally distributed. The two kinds of spots vary considerably in size and shape. —CHAS. E. BENDIRE, *Washington, D. C.*

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* Baird, Auk, Vol. IV, 1887, p. 71.

The Old-squaw (*Clangula hyemalis*) **in South Carolina.**—On the 30th of December, 1887, I was informed by my friend, Mr. Henry Hunter, that he had shot a pair of 'Long-tailed' Ducks, in Charleston Harbor, and, in fact, within a few rods of the Sea Wall of the Battery. I at once went with him to his house to see the birds, but to my dismay, I found that the cook had been ahead of me, and the picked bodies and severed heads were gravely spread before me. From the heads I identified the mortal remains as, beyond a doubt, those of *Clangula hyemalis*. Upon my representing to Mr. Hunter the rarity of the bird so far to the south, he promised to keep a close watch and try and procure another, and on the 16th of January, 1887, sent me word that he had a specimen for me. This, like the former, was shot within a hundred yards of the city, and during a mild spell of weather, though it had been quite cold. The Duck was a female and lacked the lengthened tail-feathers. It was not fat, but was in fair winter plumage, and is the only Duck whose head I have been able to draw through the skin of the neck. The specimen is now in my collection. On January 20, Mr. Hunter wounded a male 'Old Wife' (a *lucus a non lucendo*), which he said had a very long tail. The bird dove, and owing to the extreme roughness of the water he was unable to see anything more of it. There had been three of them swimming together. The same gentleman informs me that a few winters ago, in about 1883, his brother stood in his yard, which faces the water, and shot a specimen of *Clangula hyemalis* that was feeding in the shallow water near by.

The Ducks in Charleston Harbor during the winter come very close to the Sea Wall around the Battery, and I have frequently seen the Lesser Black-head, the Buffle-head, the Grebe, and once a fine male Golden-Eye, so close that I could distinguish the iris, or in military parlance "see the whites of their eyes."

I think that this will prove the most southern record of *C. hyemalis*, as yet; at least I can find none other so far south.—ELLISON A. SMYTHE, JR., *Charleston, S. C.*

Surf Scoter (*Oidemia perspicillata*) **in Kansas.** — I would like to record the first appearance in this State, of the Surf Scoter (*Oidemia perspicillata*). The specimen was shot by myself above the dam across the Kansas River at Lawrence, Kansas, Oct. 29, 1887. The bird was not in company with any other Ducks. It is a young male, with the characteristic large bill with two round, horny plates on the side near the base. The two loral and auricular white patches are well defined; below dusky black; rest of plumage black or nearly so. The bird is mounted and in my collection. The following are the measurements: Length, 18.88; extent of wings, 32.60; wing, 9.25; tail, 2.98; tarsus, 1.81; middle toe and claw, 2.96; chord of culmen, 1.60; bill along gape, 2.38. — A. L. BENNETT, *Lawrence, Kan.*

Note on Rostratulinæ.—It would appear that Vieillot instituted the genus *Rostratula* in 1816, before Cuvier proposed *Rhynchœa* for the same Painted-snipe, though the former name has never become current. These Snipes are peculiar in several respects, and especially in those secondary sexual characters for which the female is conspicuous, among which are the tracheal convolutions. In any system which recognizes several families of charadriomorphic birds, such characters would seem to be of more than generic value.—ELLIOTT COUES, *Washington, D. C.*

The Wild Turkey in Massachusetts.—When a pupil of the Public Latin School in Boston in 1837-38, I spent a portion of my summer vacations in Northampton. I distinctly remember conversing with some of the town's people at those times in regard to the existence of a flock of Wild Turkeys (*Meleagris gallopavo*) which had frequently been seen in the neighborhood of Mount Holyoke. I was much interested in the circumstance, which even then was deemed very unusual.

These birds had the range of a large tract of wild mountainous country, in some parts almost inaccessible and impassable, lying at the base of and comprising Mount Holyoke, and to the southwest also including Mount Tom and its surroundings. An incident occurring at this period serves to show the character of this district. A stranger ascended Mount Holyoke to enjoy the view from its summit. In descending he missed the path, and becoming bewildered, wandered away into the forests at the base. Here he passed two or three days before he succeeded in extricating himself in a famished condition, and having upon his person only a small portion of the holiday attire in which he ascended the mountain.

I am unable to state the exact period at which this flock became exterminated, but should say that it must have been in 1840, or thereabouts.

My friend, Mr. J. A. Allen, has kindly given me the following references on this subject, which I have looked up.

Hitchcock in his 'Geological Report of Massachusetts,' 1883, says, "Wild Turkeys are frequently met with on Mount Holyoke." In the same volume, Dr. Ebenezer Emmons, in his list of the birds, says, "The Wild Turkeys have now become scarce and nearly extinct."

In a communication to the 'Bulletin' of the Nuttall Ornithological Club (Vol. I, 1876), Mr. J. A. Allen says, "According to John Josselyn the Wild Turkeys began early to decline." This author, writing in 1672 ('New England's Rarities') says, "I have also seen three score broods of young Turkies on the side of a marsh sunning of themselves in a morning betimes, but this was thirty years since, the English and the Indians have now destroyed the breed so that it is very rare to meet with a wild Turkey in the Woods, but some of the English bring up great stores of the wild kind which remain about their Houses as tame as ours in New England."

Thompson, in his 'History of Vermont,' says, under date of 1842, "A few of the Wild Turkeys continue still to visit and breed upon the mountains in the southern part of the state."

In a communication to the 'Proceedings' of the Essex Institute, under date of May 2, 1864, Mr. Allen says, "The Wild Turkey is now probably extinct in this State. Within a few years it has been said to occur wild on Mts. Tom and Holyoke, but I can find no authentic instances of its recent capture in this State. It is well known that the domestic turkey will sometimes take to the woods, assuming the habits of the wild bird. Hence these reports may well be received with considerable caution."

In Baird, Brewer, and Ridgway's 'Land Birds,' Vol. III, 1874, we find the following: "It has probably become an extinct species in New England, though within a few years, individuals have been shot in Montague, Mass., and in other towns in Franklin County."

We must consider, then, that the fate of this noble bird, not only in Massachusetts but in New England, has been decided for many years, and the same fate awaits it in all the other States, where it still lingers, unless means are early adopted to prevent its complete annihilation. — D. D. SLADE, *Museum of Comparative Zoölogy, Cambridge, Mass.*

The European Kestril in Massachusetts—A Correction.—In 'The Auk' for January last (Vol. V, p. 110), the locality of capture for the specimen of this species there recorded should read Strawberry Hill, Nantasket Beach, Mass., instead of "Nantucket," Mass.—CHARLES B. CORY, *Boston, Mass.*

First Occurrence of the Western Red-tail in Ontario.—I have obtained from M. J. Dodds, St. Thomas, Ont., a fine adult of the Western Red-tail (*Buteo borealis calurus*), which was killed near there in the fall of 1885, by John Oxford. This appears to be the first recorded occurrence of this species in Ontario. At the same time I procured from him an Ontario specimen of the Sandhill Crane, killed at Roudeau in 1869 by the same man, which is interesting from the probability that Ontarians have seen their last living examples of this species in the Province, and there are but very few native specimens in existence.—W. E. SAUNDERS, *London, Ont.*

Dichromatism in the Genus Nyctidromus. — During my examination of this group, Mr. J. A. Allen called my attention to a number of particularly red or rich cinnamon colored birds, among the twenty-seven specimens from Matto Grosso, Brazil, which belong to the American Museum of Natural History, and were collected by Mr. Herbert H. Smith.

Having before me a number of specimens from other localities belonging to the National Museum, the American Museum of Natural History (the Lawrence collection in particular), I also find this dichromatism, though to a less extent. Judging from the material at my command, it seems to be prevalent only about and south of the equator, although it may be looked for in a lesser degree in Mexico and Texas. These two phases—the red and gray—are analogous to those so well known to exist in our common Screech Owls of the genus *Megascops*. I find that in Matto Grosso, Brazil, one out of every three are in the red phase; in

Cayenne, Ecuador, and through the northern part of South America, about one in six are red; in Panama and Central America, about one in ten are red; while of the thirty or more examined from the region north of Central America, no definite red phase is perceptible.

So much has been written during the last hundred years upon the birds of this genus that it is possible these two phases of plumage have been noticed and recorded; but in looking over all the references made by English and American naturalists I fail to find any notice of its occurrence. I therefore give my observations for what they are worth, as aids to the interesting though but little understood subject of dichromatism among birds.—GEO. B. SENNETT, *Am. Mus. Nat. Hist., New York City.*

On the Further Occurrence of Otocoris alpestris praticola in Chester County, South Carolina.—That the advent of Prairie Horned Larks does not alone depend upon exceptional cold in this immediate region is manifest; for the past winter has been noteworthy for its clemency and for the presence of these birds in comparative abundance. December 3, the first specimens of the season were secured, but a small flock, presumably of the same subspecies, was seen a week earlier. From this time forward until the end of January they were met with continually, and a few were noted at intervals through February. The situation where my observations were chiefly conducted was a closely cropped pasture of about a dozen acres, sloping gently to the southward. Here, during the two months mentioned, I never failed in twenty visits to find one or more flocks. As I obtained, from the first, only *praticola*, I assiduously pressed my investigations, hoping definitely to settle for the present season, at least, the true status of the two forms of *Otocoris* reported as occurring in this section. During December I shot one hundred three females and sixteen males, all of which belonged to the western race. In January thirty females and ten males of like kind were procured. A larger number could have been taken, but I desisted from shooting others as soon as I became satisfied as to the real character of the individuals constituting a company. A feature of marked prominence was the preponderance of females. Only on one occasion (Jan. 10) did I capture an equal number of both sexes.

	Sex.	Length.		Extent.		Wing.		Tail.	
		in.	mm.	in.	mm.	in.	mm.	in.	mm.
Maximum	♂	7.40	187.96	13.30	337.82	4.18	106.17	3.14	79.75
Minimum	♂	6.95	176.53	12.60	320.04	3.93	99.82	2.75	69.85
Average	♂	7.14	181.36	13.03	330.96	4.05	102.87	2.99	75.94
Maximum	♀	6.85	173.99	12.60	320.04	3.93	99.82	2.88	73.15
Minimum	♀	6.40	162.56	11.80	299.72	3.62	91.95	2.45	62.23
Average	♀	6.66	169.16	12.23	310.64	3.77	95.75	2.69	68.32

A parallel instance of male birds wintering further north than their consorts is exhibited in the case of the Towhee. Relatively few females of that species are found during the winter months in this locality.

About sixty-five per cent of the females collected had the chin and throat primrose-yellow. In several it attained an intensity corresponding to that of the brightest males. This depth of color does not necessarily indicate an appproach toward *alpestris;* as the wing in one of the deeper examples measures only 3.66 in., while in a white-throated specimen it reaches 3.88 in.

In the foregoing table are given the dimensions of twenty-six males and one hundred thirty-three females. The length of tail is the actual length of the longest rectrix. In the 'wing' the chord is given.—LEVERETT M. LOOMIS, *Chester*, *S. C.*

Corydomorphæ.—The Lark family, Alaudidæ, represents a particular superfamily series of true oscine passerine birds, distinguished from other Passeres by the non-oscine scutelliplantation, and may appropriately bear the above name, conformably with other passerine groups ending in *-morphæ* in Dr. Sclater's terminology. — ELLIOTT COUES, *Washington*, *D. C.*

Molothrus ater again in Massachusetts in Winter.—On Jan. 31, 1888, I shot a male Cow Bunting at Watertown, Mass. It was in an old field with a large flock of Goldfinches (*Spinus tristis*), feeding on the weeds and stubble that had not been covered by the snow. The bird was thin, but otherwise in good condition.

This is the third time that this species has been found wintering in New England.*—ARTHUR P. CHADBOURNE, *Cambridge*, *Mass.*

Blackbird Flights at Burlington, Iowa. — The autumnal migrations of the Icteridæ at Burlington, Iowa, are notable chiefly on account of the immense flocks of certain Blackbirds which congregate in that vicinity. The extensive swamps bordering the Mississippi River above and below the city, on the Illinois side, form an especially favorable rendezvous for these birds, three species of which are represented, nearly in equal numbers—*Quiscalus quiscula æneus*, *Scolecophagus carolinus*, and *Agelaius phœniceus*. During September and October the cornfields of Iowa are visited by countless numbers of these black marauders, which wander about in mixed flocks of several thousands, passing the day in the fields and the night in the woodland or marshes. And it is during this period that so many thousands are poisoned and killed by the farmers. About the first of October these birds begin to appear from the more northern districts, pouring into the Burlington swamps in myriads, and by the middle of the month immense numbers have here collected. Just before sunrise vast flocks begin to rise out of the swamps and radiate in all directions towards the inland cornfields, where they spend the day, returning again to the swamps before sunset. These flocks are often a quarter of a mile in width and are more than an hour in passing—a great black band slowly writhing like some mighty serpent across the heavens in either direction, its extremities lost to view in the dim and distant horizon. Not unfrequently three or four such vast flocks are in sight at one time. How far away from their night resorts they go each day has not been observed; an hour and a half before sunset, twelve miles away from the river, the mighty armies of Blackbirds are still seen coming over distant hills and directing their courses toward the marshes. It is evident, however, that many miles are daily traversed in their journeys to and from their feeding grounds. Making liberal deductions for any possibility of over estimating, the numerical minimum of individuals in a single flock cannot be far from twenty millions.—CHARLES R. KEYES, *Des Moines, Ia.*

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* Two were killed at Belmont, Mass., Jan. 2, 1883, by Mr. Spelman (Bull. N. O. C., Vol. VIII, 1883, p. 121). One seen at Taftsville, Vt. from Dec. 30 to Jan. 30 (C. O. T[racy], Orn. and Oöl., Vol. IX, 1884, p. 45).

Quiscalus quiscula aglæus at Charleston, South Carolina.—Mr. Loomis's record* of the finding of the Bronzed Grackle (*Q. q. æneus*) at Chester, South Carolina, reminds me that it may be well to mention that the bird of the coast region of South Carolina appears to be the Florida Grackle (*Q. q. aglæus*). At least this is the only form that either Mr. Wayne or I have thus far detected there. It is nowhere common, as far as our experience goes, but is apparently resident, for I found it breeding near Charleston in 1884, and Mr. Wayne has just sent me three specimens taken near Yemassee in January, 1888.

As Mr. Loomis has previously reported true *Q. quiscula* from Chester, it follows that South Carolina furnishes all three subspecies. — WILLIAM BREWSTER, *Cambridge, Mass.*

The Evening Grosbeak in Ontario.—In 'The Auk' for July, 1887, Mr. E. E. Thompson has a note on the capture of the Evening Grosbeak near Toronto and records it as the fifth published occurrence in the Province, the other four being given in 'Birds of Ontario.' Probably this bird occurs every second or third winter in greater or less numbers, as I have frequently noticed them in the cases of stuffed local birds which are to be found all over the country. There is one in the collection of Ven. Archdeacon Sandys, Chatham, which was secured near that place; and one in the collection of Mr. John Dodds, St. Thomas, also of local occurrence; and one was taken near London in December, 1886, which I saw at the house of a taxidermist, but was unable to obtain particulars. — W. E. SAUNDERS, *London, Ont.*

Loxia curvirostra minor taken again at Yemassee, S. C. — Ten Red Crossbills were shot at Yemassee by a negro boy during the month of January, 1888. It seems as if they had changed their diet, as their crops contained only worms, which are found in dead pine trees. There was no 'pine mast' to be had, and perhaps that accounts for their change of food.— ARTHUR T. WAYNE, *Charleston, S. C.*

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* Auk, Vol. V, No. 1, p. 113.

Carpodacus purpureus at Portland, Maine, in Winter. — Last Autumn (1887) I saw Purple Finches (*Carpodacus purpureus*) in the outskirts of the city up to November 11,—later than they had ever been seen in this vicinity. Having no suspicion that they would remain through the winter, and being very busy, I then ceased to look for them. During the last of January, however, I frequently heard bird notes I could not ascribe to any resident species, or to any species known to winter about Portland, and I was told by friends living in the suburbs that the mountain ash berries there were being eaten by a strange bird. On January 26 and 27, Portland was visited by the severest storm that has occurred here for nearly twenty years. One might think that such weather (there was now over three feet of snow) would have discouraged a bird unused to our winter season; but such was not the case, for, early in the morning of February 1, I saw a Purple Finch (a female or immature male) feeding on the berries of a mountain ash which grows in front of my study window. That afternoon I noticed three birds, an adult male and two females or immature males, in the same tree. On February 8, I saw three adult males feeding in a crab-apple tree from which the fruit was not gathered in the fall. For the succeeding twelve days, besides seeing individuals in mountain ash trees, I never passed this crab-apple tree without noticing these birds there. The largest number seen was seven, — five males and two females or immature males. During these twelve days* five inches of snow fell and the thermometer averaged 18.5° Fahrenheit. For the next two weeks I was out of town and unable to take notes. On March 10 I found at least eight Purple Finches in a large flock of *Spinus pinus*; it was impossible to count them accurately. For the next three days they fed in the same place (under a mountain ash where the snow had blown off) in about the same numbers. On March 13, came a terrific snow-storm which will hardly need to be recalled to Eastern readers of 'The Auk.' Nevertheless, on the following day, Purple Finches were still here, and I have seen them every day since up to the present time (March 20). It may here be stated that their earliest recorded arrival at Portland is March 23 (*N. C. Brown*, Proc. Port. Soc. Nat. Hist., 1882, p. 12). Of late they have grown shyer and do not associate so much with the Pine Finches. The largest number I have seen together is twelve, and that only once.

When it is remembered that that part of the winter during which I saw no specimens was by far the mildest, I think no one will doubt that Purple Finches have been resident here this year. There seems to be no previous record of their occurrence at all in winter so far north in New England as Portland; and it is remarkable that they should have chosen an unusually severe winter for what may be a first experiment. —JOHN C. BROWN, *Portland, Maine.*

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*At this time a notice of their occurrence up to February 20, which was published in the Portland 'Daily Advertiser' for March 20, was handed in to the Portland Society of Natural History.

Ammodramus leconteii at Yemassee, S. C.—I have been on the lookout for Leconte's Sparrow every winter since I shot the one which Mr. Brewster recorded in 'The Auk' for July, 1886, but have been unsuccessful until February 9 of this year when I shot a fine male as he flew up from an old abandoned rice-field. This bird is the only one I have seen since I shot the one in 1886; and the bird can be considered as only a straggler to lower South Carolina.—ARTHUR T. WAYNE, *Charleston, S. C.*

Ammodramus henslowii wintering in large numbers at Yemassee, S. C.—I shot during the months of January and February of this year thirty-six Henslow's Sparrows; several seen to fall in the high grass could not be found. In the series of thirty-six examples before me they vary greatly in size and markings. Some have the pectoral band so dark and heavy as to hide the other surface markings, and at a glance one would pronounce the breast unbroken jet black.

I have never found this species wintering here before. It is a very rare bird with us, and is only to be found in any numbers in the fall.—ARTHUR T. WAYNE, *Charleston, S. C.*

Occurrence of Vireo flavoviridis at Riverside, California.—On October 1, 1887, I noticed, while hunting in the Santa Ana River bottom, a little bird flitting about in the top of a high cotton-wood tree. It was secured, and to my surprise, I found it to be a *Vireo flavoviridis*. Mr. Ridgway, to whom I sent it for positive identification, says it is the most highly colored specimen he has seen. This Vireo is confined to the Lower Rio Grande Valley and southward, therefore my specimen must have been a straggler.—WILL W. PRICE, *Riverside, Cala.*

The Northern Range of *Oporornis formosa* in Illinois.—May 23, 1887, I secured a female of *Oporornis formosa* one-half mile southeast of Grand Crossing, among the undergrowth in a small isolated patch of woods. The finding of this species in that locality is an event of unusual interest. A specimen has been reported to me by my friend, Mr. H. K. Coale, of Chicago, as found by Mr. R. B. Trouslot at Plano, Illinois, a few years ago. These records mark the northern limit of this species in this State, so far as I know. Mr. Robert Ridgway, of Washington writes, however, in answer to my inquiries, that the only record of the occurrence of *O. formosa*, to his knowledge, in northern Illinois is that mentioned by Mr. E. W. Nelson (Bull. Essex Inst., VIII, 1876, p. 101), who gives the species as being "a very rare summer visitant from Southern Illinois," but on what evidence Mr. Nelson based his statement is not specifically mentioned.—JOSEPH L. HANCOCK, *Chicago, Ill.*

Protonotaria citrea in Montgomery County, Pennsylvania.—On May 15, 1887, I took a high-plumaged male Prothonotary Warbler near Arcola, Montgomery County, Pa. It was feeding well up in a tall larch on the banks of Perkiomen Creek. This was the only one of the species seen at the time, but shortly afterwards several more were found in the hardwood trees on the brow of a hill in the immediate vicinity. In both instances the birds, although near water, were on comparatively high ground and at some distance from the swampy coverts which we would have expected them to affect.—H. F. Moore, *Philadelphia*, *Pa.*

Dendroica tigrina at Iowa City, in November. — A small bird taken at Iowa City, Iowa, November 27, proved to be a Cape May Warbler (*Dendroica tigrina*). It was feeding in the top of a pine tree in one of the door-yards at that place, where it was shot. It was in immature plumage, which was very much soiled with pine resin; but otherwise was in good condition.—Charles R. Keyes, *DesMoines*, *Iowa.*

Bird Notes from Toronto.—A male *Sturnella magna* was collected Feb. 21, 1881, by Mr. Jas. Helliwell, at Highland Creek, about fifteen miles east of Toronto. The bird was in fine plumage and in fairly good condition. He had his 'home' in a dense thicket in a deep ravine, through which ran a 'Spring Creek' (which did not freeze during the winter), about a mile from a barn-yard which he visited almost daily, feeding on sweepings and pickings from manure. The bird was carefully dissected but no wound or injury of any kind could be found. The gizzard contained a few small pieces of gravel, a few grains of oats, and pickings from cow dung. This is believed to be the first record of this species wintering north of Lake Ontario.

A male *Melospiza fasciata* was collected Feb. 2, 1886, by Mr. Wm. Squires, while feeding on amaranthus seeds in a garden in St. Matthews-ward, Toronto. Snow ten inches in depth. Another specimen was taken Jan. 31, 1887, by Mr. Daniel G. Cox, in a ravine in St. James Cemetery, Toronto, in a willow thicket densely grown with goldenrod (*Solidago*). Snow six inches deep.

April 4, 1886. *Merula migratoria* Linn. Gizzard contained three hipps of *Rosa blanda* and one larva of *Pyrrharctia isabella*. Ground frozen. It is not usual for any bird to feed on the larvæ of this moth.

A male *Icterus spurius* was collected May 13, 1887, while pursuing insects through willow blossoms, just east of the city limits. Believed to be the first authentic record of the occurrence of this bird at Toronto.

A male European Goldfinch (*Carduelis elegans*) was collected May 21, 1887, by Mr. Daniel S. Cox, about a mile north of the city limits—one out of four—while resting on the top of a beech tree. The remaining three flew off in a northerly direction. The birds were evidently in a natural condition and migrants from the south, doubtless from the New York colony.—William Brodie, *Toronto*, *Can.*

CORRESPONDENCE.

[*Correspondents are requested to write briefly and to the point. No attention will be paid to anonymous communications.*]

Observations on the Pterylosis of Certain Picidæ.

To the Editors of The Auk:—

Dear Sirs:—On the 25th of last August, 'Forest and Stream' very kindly published a contribution of mine entitled 'A Chapter on Pterylography,' which was illustrated by five figures. That paper pretended to be nothing more than a good guide to those interested in pterylography, and who desired to know something of one of the best characters we find in birds to assist us in their classification. It was also written with the hope that those who had the opportunity might more carefully examine into this character among our own birds, and in time be enabled to make some useful contributions to the subject.

In the 'Chapter' I refer to, my chief examples were chosen from the Woodpeckers, and in the course of my demonstrations of the *apteria* and *pterylæ*, as found among certain forms of those birds, a number of interesting and important facts came to light. Since then, I have carefully examined the pterylosis in the genus *Colaptes*, and compared it with additional specimens of *Dryobates* and *Sphyrapicus*. Had I been ready to pluck certain tempting specimens from the Pacific coast region, which I have by me in alcohol, and for which I am under great obligations to Mr. G. Frean Morcom of Chicago, and Mr. F. Stephens of San Diego, Cal., I might have thrown perhaps still more light upon this subject, but these specimens I am reserving for a future and more extended memoir upon the Pici. At any rate I would like to review in the present connection some of my observations upon the pterylosis of the American Picidæ, and bring the facts in question more directly to the notice of working ornithologists.

Nitzsch in his classical volume on 'Pterylography' (English Trans.) confesses to have been able to examine only a few species of Woodpeckers, so his account of the pterylosis in this group of birds is not as full as it might otherwise have been. His investigations were apparently confined to *Picus luridus* (a species of Sumatran Woodpecker, first described by him, and which lacked the small "inner humeral tract"), *P. tridactylus*, *P. carolinus*, *P. bengalensis*, *P. auratus*, *P. medius*, *P. macei*, *P. martius*, together with *Picumnus minutus*, and *Yunx torquilla*.

In his descriptions of the pterylosis in Pici, this eminent observer calls attention to the submedian, longitudinal capital apterium, extending along the elevation caused by the underlying limbs of the prolonged hyoidean apparatus. This is shown at *b*, *c*, in Fig. 2 of the present letter.

Fig. 1.

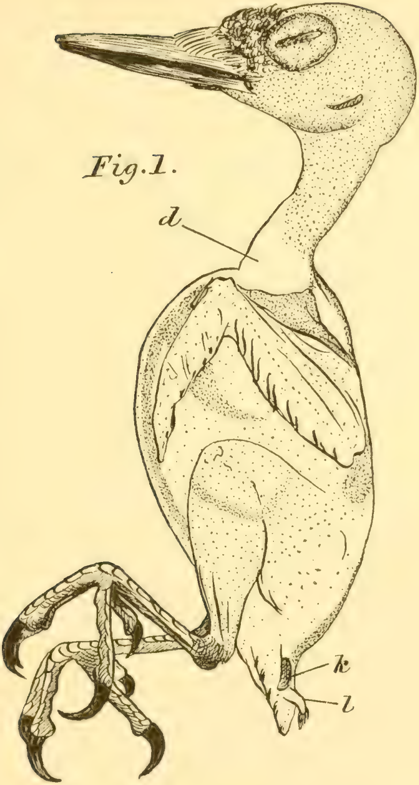

FIGURE 1.—Left lateral view of a plucked specimen of Harris's Woodpecker (*D. v. harrisii*), ad. ♂, life size, by the author, from the specimen; *d*, upperpart of the 'inferior space' (*Apt. mesogastræi*); *k*, the uropygial gland of the left side; *l*, its external papilla with opening at its summit, which is also tufted.

Nitzsch says of it, that "On the head the vertical space is especially remarkable, a band destitute of contour-feathers extending from the base of the beak, over the forehead to the occiput, which I find in all Woodpeckers" (p. 96). As I have already shown in my 'Forest and Stream' article, and here reproduced in Fig. 5, this feature is totally absent in

Sphyrapicus v. nuchalis, and it is a well-known fact that in this Woodpecker the limbs of the hyoid arches are nearly or quite as short as we find them in ordinary birds.

Another apterium, also alluded to by Nitzsch, and occurring on the sides of the head, is the temporal space; this small, subcircular, naked area, when present, is found just behind the eye and above the aperture of the ear. It was not observed by me in the specimen of Harris's Woodpecker shown in Fig. 1, but recent and more extended observations lead me to believe that it is a quite constant pterylographic character in this species. On the other hand, I have yet to find it present in *Sphyrapicus*, although I do not positively deny that there may be exceptions to this rule likewise. It is invariably present in *Colaptes*, a picine form which also has the longitudinal capital apterium well marked. The remainder of the head in Pici, so far as the writer has examined them, is always found to be densely feathered (Fig 4).

Among Woodpeckers the spinal tract offers us many and important variations (see Fig. 2, *g*, *h*, *j*, and Fig. 5). Nitzsch discovered so many differences in this particular in the species he examined that it will be impossible to enumerate them here. Figure 2 shows very well the distribution of the spinal feather tract in *D. v. harrisii*, and Fig. 5, the interesting departure therefrom in *Sphyrapicus*, in which latter species the arrangement is much the same as we find it to be in many typical passerine birds. In *Picus viridis* an interruption takes place between the narrow median neck strip of the spinal tract and the 'saddle area' (*h*), and in *Colaptes* this feature is likewise fairly well marked. *Colaptes* again has the posterior moiety of the spinal tract, just as we find it to exist in *Dryobates*, as shown in Figure 2, at *j*. As far as I know all Woodpeckers have a strongly tufted oil gland (Fig. 1, *l*).

Faintly marked as a rule in all Pici, the *femoral tract* in *Colaptes* agrees in being but feebly traceable by the presence, on either side, of a few downy feathers, and at the most not more than some three or four contour ones. Like *Dryobates*, however, *Colaptes* possesses on either leg, a well-defined 'crural tract,' occupying a position similar to the one we find it in in the majority of Woodpeckers (Fig. 2, *i*). Nitzsch, as I have elsewhere stated, found the 'inner humeral tract' (Fig. 2. *f*) absent only in the Sumatran species, which he described as *Picus luridus;* this characteristic and sharply defined though small feather area is present in all species of *Colaptes*, as it is in every American Woodpecker that the writer has ever submitted to a pterylographic examination. On the outer side of this smaller humeral tract we also find, in every species of Woodpecker, the larger 'humeral tract' proper, which, as is usual, passes obliquely across the region of either shoulder, as shown in Figure 2 at *e*, and in Figure 5, where it is likewise well marked. If we carefully examine, we shall find very sparsely appearing feathers, for the most part downy ones, showing themselves here and there on the apteria among the dorsal areas. No special description is needed here for the 'alar tracts' in these birds, and we can next turn to the ventral aspects of the specimens under consideration. Here we find the feather areas very well defined, more espe-

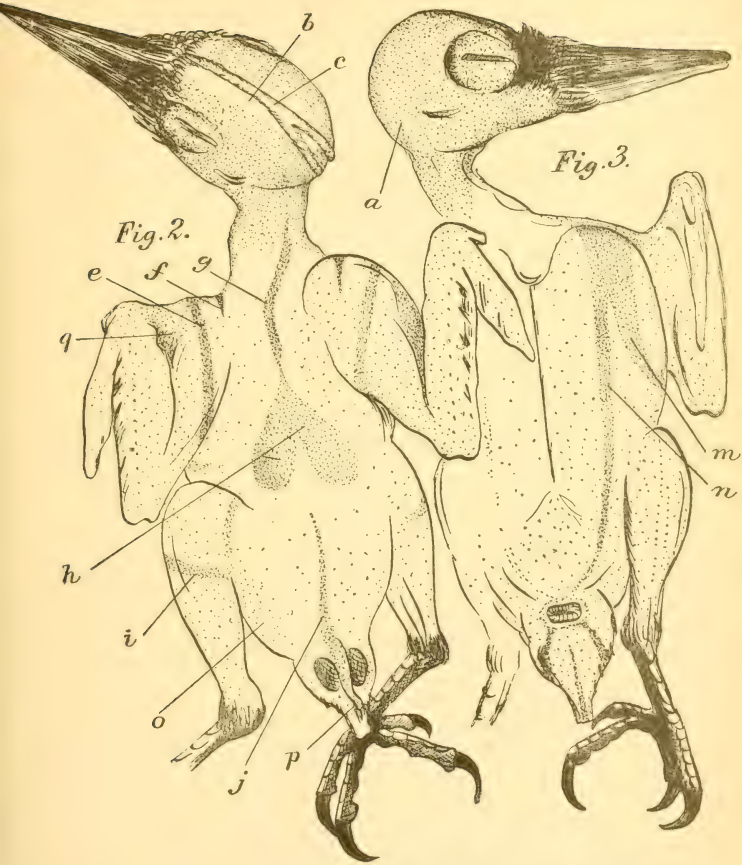

FIGURE 2.—Dorsal aspect of the same specimen shown in Figure 1; *b*, capital apterium; *c*, the median (at the point indicated) elevation of the skin caused by the epibranchials of the hyoidean apparatus beneath it; *g*, spinal tract; *f*, inner humeral tract; *h*, lower dilation of spinal tract (the saddle); *j*, lower part of spinal tract (rump tract); *i*, crural tract; *o*, femoral tract (very faintly seen in a Woodpecker); *g*, alar tract.

FIGURE 3.—Anterior or ventral aspect of the same specimen, with its head turned to the left; *a*, capital tract; *n*, the ventral tract, and *m*, its external branch. From nature, by the author.

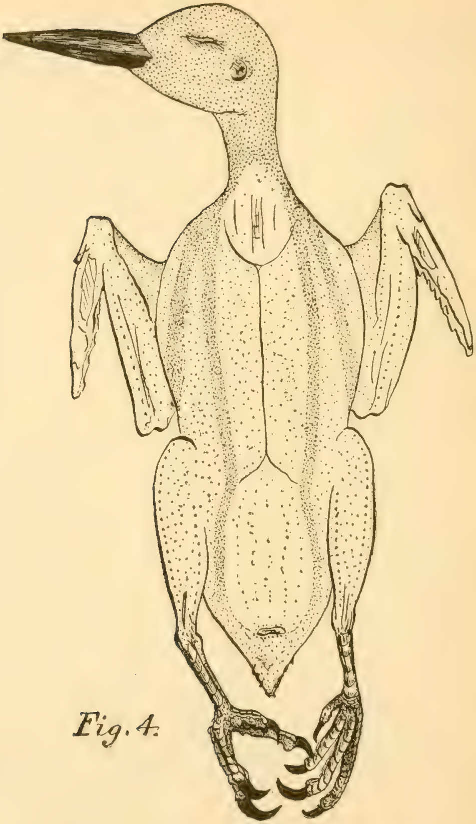

FIGURE 4.—Ventral view of a plucked specimen of the Red-naped Woodpecker (*Sphyrapicus v. nuchalis*), showing its pterylosis. From nature, life size, by the author.

cially the 'ventral tract' and its peculiar external branch (Fig. 3, *m*. and *n*).

It will be seen that in *Dryobates* the main ventral tract is very broad near the summit of the shoulder, and continues to be so until we arrive at the bifurcation with its external branch *m*, which latter curves out towards

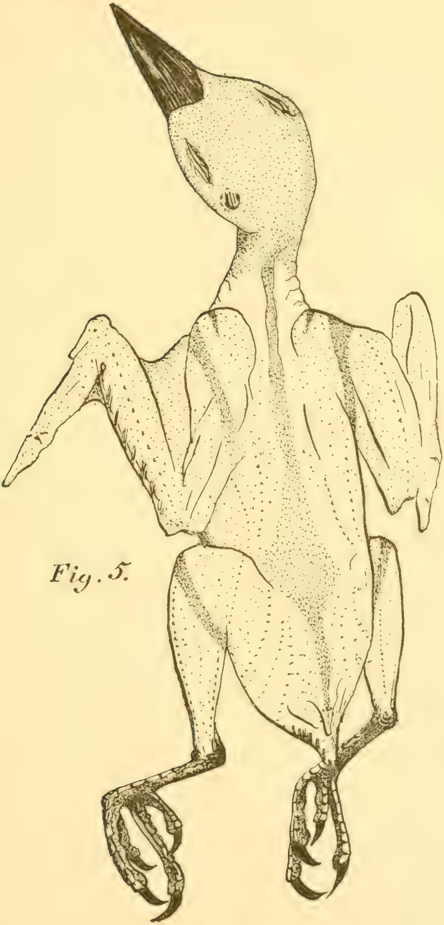

Fig. 5.

FIGURE 5.—Dorsal aspect of the same specimen of *Sphyrapicus* shown in Fig. 4, designed to illustrate its pterylosis. Drawn by the author; life size.

the side as a sharp-pointed and handsome hook (see also Fig. 1), terminating in a free extremity. Figure 4 shows this arrangement to be quite different in *Sphyrapicus*, where the form of the external branch is narrower, and the bifurcation higher up towards the neck of the bird. It too, however, terminates in a free-pointed extremity at the side. The abdominal part of the main ventral tract is much stronger in *Sphyrapicus* than it is in Harris's Woodpecker, in which latter species it usually dwindles to a single row of contour-feathers before arriving at the vent. Both species have the aperture of the vent completely surrounded by a single row of small contour-feathers, while in *Dryobates* there are posterior to this region a mid-coccygeal pteryla, with an oblique lateral one on each side of it (Fig. 3). These I have designated as the 'postventral tracts.'

Colaptes has, both in arrangement and form, its ventral and postventral tracts almost identically the same as we find them in the genus *Dryobates.*

Nitzsch, alluding to the rectrices and remiges in the Woodpeckers, says "*twelve* tail-feathers, but the two outer ones small and bent in between the two preceding ones," and "the wings bear from nineteen to twenty-one remiges, but always ten on the pinion, of which the first is rather short, the second is likewise shorter than the following ones, but the third is sometimes equal to the fourth and fifth, and with them the longest, and sometimes exceeded by the fourth, fifth and sixth, which are then of equal length."

Persons interested in the study of this subject may well consult besides Nitzsch's 'Pterylography' certain important papers in the early issues of the 'Proceedings' of the Zoölogical Society of London.

Faithfully yours,

R. W. Shufeldt.

Fort Wingate, New Mexico,
21st Feb. 1888.

Polydactylism in Birds.

To the Editors of the Auk:—

Sirs:—My attention has been directed to a short article in 'The Auk' (Vol. IV, No. 4, pp. 331-333, Oct. 1887), on 'Ornithological Curiosities.—A Hawk with nine toes, and a Bobolink with spurs on its wings.' I do not profess to be an ornithologist, though much interested in the subject, and something of an observer of bird life; I prepare this note as a teratologist. I am much pleased with the report of the cases of the supernumerary development by Mr. Henry K. Coale, and hope his example will be followed by others from numerous observers all over the land.

In my somewhat extensive researches for the purpose of collecting and classifying the bibliography and references relating to the 'The Material of Teratology,' I have been surprised at the infrequency as well as the meagreness of reports, and the almost absence of even incidental mention of cases of supernumerary and duplex development in birds. Such as are found are almost exclusively such as occur in domesticated fowls. I have been disposed to believe that ornithologists are inclined to ignore malformations and monstrosities as unworthy of study, or even mention, and that they have cast aside the specimens which have presented themselves to their casual notice, as one would an imperfect example in any other department of natural objects.

I desire to invite the co-operation of all classes of 'bird men'—sportsmen, collectors, and scientific ornithologists—in procuring and reporting all cases of double monsters, or of supernumerary development, in any degree in which it may be found in any species of the feathered tribes. I am quite certain that 'The Auk' will be a proper medium of communication—under the head of Teratological Notes—or Ornithological Teratology.

Ulysses Aldrovandus, who was a celebrated ornithologist, and a voluminous writer on the subject two and a half centuries ago, gives us many illustrations of double monstrosities, extra legs and extra toes in various species of birds. These are chiefly found in his special work 'Monstrorum Historiam,' a ponderous folio, published sumptuously in 1642. The pages 549 to 570 are occupied with descriptions of cases of extra limbs in birds, under the title 'Multiplicatio pedvm in fœtivs avivm,' and is illustrated with seventeen figures. The cock of the common fowl on page 560 has two extra toes attached to his left leg.

Otto, in his great work, 'Monstrorum Sexcentorum Descriptio-Anatomica,' grand folio, 1841, describes (No. 473) a chicken with seven toes on its right foot.

Polydactylus is not rare among animals that normally are possessed of several digits. In the human subject six or more fingers or toes are not very uncommon. In three well authenticated cases, as many as nine toes were developed on the left foot.

There is already an extensive literature pertaining to teratology, and still it is desirable to have more accurate records of genuine cases of congenital malformations, particularly such as may occur among non-domesticated animals and birds. There are many interesting questions, both scientific and popular, which may be enlightened by a powerful array of well attested facts. The miserable popular belief that maternal mental emotion can and does produce malformations, will receive its annihilating blow when it is generally known that every form of malformation which has ever been observed in the human fœtus, has its exact analogue in all the lower animals—viviparous and oviparous. It is a fact, that there is no physical monstrosity which is peculiar to the human fœtus.

George Jackson Fisher, M. D.

Sing Sing, N. Y.

NOTES AND NEWS.

Dr. Joseph B. Holder, one of the Founders of the A. O. U., died suddenly of apoplexy, Feb. 28, 1888, at his residence in New York City, at the age of sixty-four years. Dr. Holder was born in Lynn, Mass., and was a graduate of the Harvard Medical School. In 1846 he published a 'Catalogue of the Birds Noticed in the Vicinity of Lynn, Mass., during the years 1844-'5-'6,' the paper forming 'No. 1' of the 'Publications of the Lynn Natural History Society.' During subsequent years he published occasional observations on birds. His last formal ornithological paper, on 'The Flight of Birds,' was read before the New York Academy of Sciences, Dec. 19, 1887, and is now in press in the 'Transactions' of the Academy. Dr. Holder was more especially interested in invertebrate zoölogy. Through the influence of Professors Agassiz and Baird, he was appointed, in 1859, a surgeon in the United States Army, and assigned to duty at the Dry Tortugas, where he spent several years making, in addition to performing his official duties, valuable collections and observations in natural history. During the War of the Rebellion he was assigned to staff duty, and held important positions. In 1870 he became connected with the American Museum of Natural History in New York City, and from this date till 1885 was the chief assistant in charge of the collections, those of geology and conchology excepted. His charge thus not only included the large collections of mammals and birds, which he arranged and cared for, but also the fishes, reptiles, insects, and invertebrates generally. He remained in charge of these collections, mammals and birds excepted, until his death. He was a frequent contributor of popular articles on natural history to various magazines and papers, and published a number of original papers on his special subjects of study. His death will be a severe loss to the Museum with which he was so long connected, and will be deeply felt by the wide circle of friends to whom he had endeared himself by his genial qualities of heart and mind. He leaves a widow and son, the latter, Mr. C. F. Holder, a well-known popular writer of works on natural history.

Professor Charles Linden, of Buffalo, N. Y., an Associate Member of the A. O. U., died at Buffalo, Feb. 3, 1888, at the age of fifty-six years. For many years Professor Linden was employed as Custodian of the Buffalo Society of Natural History, and as a teacher of natural history in the High School of that city, where he organized the 'Field Club,' of which he was the leader. Born in Breslau, Germany, where he was educated, he came in early life to this country, and for a time was "a sailor on the lakes." He was an ardent lover of nature, and his zeal as a teacher and explorer inspired in his pupils a kindred enthusiasm. During his vacations he made numerous protracted collecting expeditions, visiting the Everglades of Florida, the West Indies, Brazil, and Labrador, making repeated trips to the Chaleur Bay Region, mainly in the interest of the Buffalo Society of Natural History, whose collections he greatly enriched.

He was a frequent contributor to various natural history journals, and published in 'Forest and Stream' an extended account of his varied experiences in the Florida Everglades. His exposures during this expedition resulted in an illness from which he seems never to have fully recovered, and which eventually resulted in his death in an insane asylum. He was an indefatigable worker, a noble-hearted, genial companion, tenderly loved by his pupils and associates. A large part of his Brazilian collection of birds, made principally at Santarem, is in the Museum of Comparative Zoölogy at Cambridge, Mass.; an account of it was published in the 'Bulletin' of the Essex Institute (Vol. VIII, 1876, pp. 78-83).

A JOINT meeting of the various Audubon Monument Committees of New York City was held Feb. 2, at the University of New York. Professor Thomas Egleston, Chairman of the New York Academy of Sciences Committee, presented a draft of a design which was adopted by the joint meeting, and reports of progress were made by each of the five committees represented. The monument will be in the form of a Runic cross, about fifteen feet in height, surmounting a pedestal eight feet high. The bas-reliefs will include a medallion of Audubon, figures of various birds, mammals, and plants, with inscriptions. A cut of the design adopted was ordered, for use in connection with circulars to be issued by the committees in the appeal for funds. The cost of the monument is estimated at $10,000. Considerable money has already come to hand —enough to indicate that when the plans can be definitely announced, and the object contemplated can be fairly set forth, the amount desired will be secured.

Mr. William Dutcher (51 Liberty St., New York City), Treasurer of the A. O. U. Audubon Monument Committee, reports the following contributions as all thus far (to March 20), received by the A. O. U. Committee namely: Bradford Torrey, $5.00; L. O. Pindar, $2.50; E. S. Holmes, $1.00; — total, $8.50! This is indeed a small beginning! The A. O. U. Committee will immediately issue an appeal for contributions, which will be sent to each member of the A. O. U. The responses, it is hoped, will be prompt, and creditable to the ornithologists of the country, who, above all others, should aid liberally this praiseworthy attempt at a proper recognition of Audubon and his scientific work.

Perhaps it should be added that the above record does not fully represent the contributions of ornithologists to this fund, several having sent considerable sums to the Treasurer of the New York Academy Committee.

IN ISSUING the January number of the 'The Auk' it was found, at the last moment, impossible to publish with it the 'By-Laws and Rules' and 'List of Members,' as announced on page 97 and in the 'contents,' owing to unexpected delay in the printing, without unduly delaying the publication of the number. They are therefore sent out with the present number, separately paged (pp. ix-xxviii), to follow the title-page and 'contents' of the volume in binding. In the meantime the 'By-Laws and Rules,' etc., have been published separately as a pamphlet and sent to all the members of the A. O. U.

THE TREASURER of the A. O. U. desires to express his thanks to the members of the Union for their prompt response in the matter of payment of dues. Of the 47 Active Members and 170 Associate Members, eighty-seven per cent have paid their assessment for the current year. Resignations and deaths have reduced the membership list three per cent, leaving ten per cent of the members still to be heard from.

In this connection the Treasurer would call the attention of Active and Associate Members to the desirability of increasing the subscription list of 'The Auk.' At present the journal is about on a paying basis, but were its circulation increased the magazine could be enlarged and otherwise improved. It is to be hoped that each member of the Union will endeavor to secure immediately as many new subscribers as possible from among his ornithological friends who are not as yet readers of this journal.

THE PATRONS of 'The Auk' will be interested to learn that the publication of a series of papers by Capt. Charles E. Bendire, U. S. A., on the nesting habits of some of our least known North American birds, will begin in the July number. The first paper will treat at considerable length and in a popular way of the nesting habits of the Woodpeckers of the genus *Sphyrapicus*, concerning several of the species of which group very little has hitherto been published. Captain Bendire's long experience in the field, his unequalled resources in the way of material, and his well known accuracy as an observer, will render his papers exceptionally authoritative and interesting.

AN ORNITHOLOGICAL society has been founded, at New Haven, Conn., under the name 'New Haven Ornithological Club.' Its officers are L. B. Bishop, President; H. H. Flint, Vice-President; C. C. Trowbridge, Treasurer; Robert D. Camp, Secretary. The Secretary's address is P. O. Box 726, Stamford, Conn. Meetings are held on the first Thursday of each month. The Club is in a flourishing condition, and it has our cordial wishes for continued success.

AT THE annual meeting of the Linnæan Society of New York, held March 9, the following officers were elected: President, George B. Sennett; Vice-President, Frank M. Chapman; Treasurer and Corresponding Secretary, Newbold T. Lawrence; Recording Secretary, Jonathan Dwight, Jr. The Linnæan Society has of late come to be practically an ornithological Society, all of its most active members being ornithologists, and ornithological subjects largely predominating at its meetings. At the last meeting the principal paper was by Mr. William Dutcher, on rare Long Island birds, and is published in the present number of 'The Auk.'

THE American Museum of Natural History of New York City has recently received from Dr. Edgar A. Mearns, U. S. A., two large cases of bird skins from Arizona. The collection numbers over 2,000 beautifully prepared specimens, including a very fine series of the Birds of Prey of that Territory. The Museum has also just added by purchase a collection of 400 bird skins collected by Dr. H. H. Rusby in Eastern Bolivia. This small gathering is especially interesting, as it comes from a little known region, more than one-half of the species represented proving new to the Museum's previously rich collection of South American birds. The Museum is also fortunate in securing, as an Assistant in the Department of Ornithology, Mr. Frank M. Chapman, who has recently returned from a winter's sojourn in Florida to enter upon his new duties.

From the recently published 'Annual Report' of the Museum for the year 1887, we learn that the number of bird skins now in the Museum is about 39,000, of which 13,000 are mounted. It appears that over 21,000 specimens were added during the last year. Including Mr. George B. Sennett's collection, the total number of specimens of birds available for study at the Museum is fully 45,000. The collection of nests and eggs is proportionately large.

THE SUBJECT of the voluntary interlocking of the primaries in soaring birds (see Jan. Auk, pp. 126, 127) came up again for discussion at the meeting of the New York Academy of Sciences, held Jan. 9 last, and formed the special topic of the evening. The discussion was opened by a paper by Mr. J. A. Allen, entitled 'On the Flight of Birds, with special reference to recent alleged discoveries in the Mechanism of the Wing,' in which he answered certain criticisms made at the previous meeting of the Academy, reflecting on the motives and animus of the ornithologists, and then took up the structure of birds in relation to flight, describing at some length the bones and muscles involved, and the arrangement and structure of the feathers. The alleged "new muscles" were shown to have been well known for over a century, and by means of a freshly-killed *Buteo borealis* it was demonstrated that the tips of the primaries, when the wing is fully extended, as in soaring, do not even touch each other, but are separated by a considerable space, and that consequently overlapping at the tip, or 'interlocking,' is simply impossible. It was shown that the wing must be partly closed before the tips of the primaries can be brought near enough to overlap, and that if they should overlap—which they can do only in the partly closed state of the wing — they would fail entirely to aid in relieving muscular strain in keeping the wing distended. In short, it was shown that the 'interlocking' claimed was not only an impossibility, but was wholly unnecessary as a provision for relieving muscular tension in flight. Yet the advocate of the new discovery refused to be convinced, and stated that if any one expected him to 'back down' they would find themselves 'mistaken in their man,' or words emphatically to this effect. Those interested in the original paper and in the discussion which followed it will find the subject quite fully reported in the Academy's 'Transactions' (Vol. VII, giving reports of the meetings for November and December, 1887, and January, 1888).

Mr. Montague Chamberlain, in the preface to his 'A Systematic Table of Canadian Birds,' announces that his "promised 'Bibliography of Canadian Ornithology' is well under way, and will probably be published during the coming summer." Its appearance will certainly be awaited with interest.

Among recent additions to the list of periodicals of an ornithological character are the 'Oölogist's Exchange,' a 4-page monthly, published at Austen, Ill., by T. Vernon Wilson; 'The Bay State Oölogist,' also a 4-page monthly, "devoted exclusively to students of birds, their nests and eggs" (*sic*), published at Pittsfield, Mass., by W. H. Foote; and 'The Collector's Illustrated Magazine', a monthly 16-page octavo, "devoted to the interests of collectors in all branches," edited and published by E. M. Haight, of Riverside, Cal. The first number of each is dated January, 1888. The two numbers which have reached us of the first-named consist mainly of selections from various sources; those of the other two contain original articles and notes as well as selections. Some of the original notes are of considerable interest. If the editors or publishers of these and the many other journals of a somewhat similar character now issued in various parts of the country will kindly send their respective journals regularly to the editor of 'The Auk', he will see that the original articles on birds are duly noted, from time to time, in 'The Auk,' under the head of 'Minor Ornithological Publications', in the department of 'Recent Literature.'

Just at present Mexico seems to be a favorite field for ornithological research. As the readers of the 'The Auk' are well aware, Mr. William Brewster has had several collectors at work during the past year in Lower California and Western Mexico, one of whom is still in the field. Mr. F. DuCane Godman is also giving special attention to ornithology in connection with other departments of Mexican biology, he having recently placed in the field in the southeastern and other portions of the Republic, several collectors, including Mr. and Mrs. Herbert H. Smith, Mr. F. B. Armstrong, and Mr. William Lloyd, the latter well known for his ornithological work in Texas. Mr. George B. Sennett is also extending his work beyond the Texan border, he having sent two collectors, Messrs. Priour and Grover, into northeastern Mexico, to explore the States of Tamaulipas and Nuevo Leon. The combined results of this activity cannot fail to soon make the ornithology of many portions of Mexico comparatively well known.

THE AUK:

A QUARTERLY JOURNAL OF

ORNITHOLOGY.

VOL. V. JULY, 1888. No. 3.

NOTES ON THE HABITS, NESTS, AND EGGS OF THE GENUS *SPHYRAPICUS* BAIRD.

BY CAPT. CHARLES E. BENDIRE.

1. **Sphyrapicus varius.** Yellow-bellied Sapsucker.

The general habits of the eastern representative of this genus, *Sphyrapicus varius*, the Yellow-bellied Sapsucker, have been so well written up by Mr. William Brewster in the 'Bulletin' of the Nuttall Ornithological Club (Vol. I, No. 3, Sept., 1876, pp. 63 to 70), and later by Dr. C. Hart Merriam in the same 'Bulletin' (Vol. IV, No. 1, Jan. 1879, pp. 1 to 6), that there remains nothing new for me to state.

As some of the readers of 'The Auk' may not have access to the above-mentioned articles, I will simply mention that, according to Mr. Brewster, the favorite nesting-sites of *S. varius* are large, dead birches, and that the average height of the excavation from the ground is at least 40 feet, in some instances considerably more, and that a decided preference is manifested by this species for the vicinity of water. He gives the eggs as numbering from five to seven in a set, and varying considerably in shape, some being oblong, others decidedly elliptical. They average .85 in length by .60 inches in breadth, are pure white in color, and, he states, there is much less of that fine polish than in eggs of the other species of Woodpeckers he had examined.

The average measurement of the few eggs of *S. varius* in the Collection of the National Museum, six in number only, is .84 × .65 inches.

2. **Sphyrapicus varius nuchalis.** RED-NAPED SAPSUCKER.

This race of *S. varius* I have met sparingly in various portions of the Blue Mountains of Oregon, Washington Territory, and Idaho, and as far west as the eastern slope of the Cascade Range in Southern Oregon, in the Klamath Lake region, where, however, it was rare and replaced by *Sphyrapicus ruber*, the two species overlapping each other, but not intergrading and remaining perfectly distinct. I first met with the nest and eggs of this bird in a small aspen grove at the edge of a beautiful little park-like prairie, near the summit of the Blue Mountains, in Grant County, Oregon, on June 12, 1877.* I was escorting an Army Paymaster from Cañon City to Camp Harney, Oregon, where I was then stationed. After a laborious climb to the top of the steep mountain at the foot of which the little mining town of Cañon City nestled, I stopped for some twenty minutes to rest the animals, and to eat our lunch. The spot was a lovely one; the little grove at the edge of the heavy pine forest contained perhaps half a dozen aspens, that measured a foot through or more, and a number of smaller ones. I had made myself comfortable under one of the largest ones which stood on the outer edge of the grove, watching the horses enjoying the luxuriant grass, and was busily engaged in eating my lunch, sharing it with several Oregon Jays, *Perisoreus obscurus*, which were quite tame, and absorbed my entire attention for some time. A Red-naped Sapsucker was, in the meantime, flying about my tree, alighting on others in the vicinity, and keeping up a constant chatter. I thought at first he was jealous of the Jays, and paid no attention to him, till he flew on to the tree I was sitting under, which brought out his mate. Their burrow was directly over my head, about twenty feet from the ground, and I might have noticed it sooner, by the fresh chips dropped by the birds in excavating their burrow, and which were lying all around me, had I not been entirely absorbed in watching the Jays, or 'Meat Birds,' as they are called there by the hunters and trappers. It did not take long for one of my men to climb up to the burrow and chop a sufficiently large hole in the tree to insert the hand. The entrance to the burrow was exceedingly small, not over 1¼ inches in diameter, about 8 inches deep, and about 4 inches wide at the bottom. It contained three eggs, nearly fresh, lying partly imbedded in a layer of fine chips. About a year afterwards, when passing the same spot, June 2, 1878, I took another set of three fresh eggs of this species out of a burrow in another, somewhat smaller aspen tree, in the same grove. Although aspens of suitable size were to be found in several places in the immediate vicinity of Camp Harney, Oregon, which is located at the foot and on the southern slope of the Blue Mountains, at an altitude of about 4800 feet, I failed to find any of these birds nesting there, although they were met with by me at various times in the vicinity, and sometimes even quite a distance away from the mountains. They are only summer residents in that region, but an occasional straggler does remain in sheltered locations throughout the winter. I am inclined to think that this bird is much more common in the Rocky Mountain region.

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* But I had previously found a nest with young in June, 1875, in the same locality, as well as several in 1876.

An esteemed friend of mine, Mr. Denis Gale, an enthusiastic naturalist in the fullest sense of the term, and a close observer, residing in the mountains of Colorado, has at my request furnished me with the following observations regarding this species. He writes as follows :—

"My observations have been, that this species invariably selects for its nesting-site a living aspen tree. I have never met with it in any other. This tree favors the mountain gulches, and low sheltered hillsides at an altitude of from 7000 to 10,000 feet. Above this point they do not attain sufficient size, and are mostly dwarfed and scrubby. Here in Colorado *Sphyrapicus varius nuchalis* is seldom found above 9000 feet, or much below 8000 feet. The aspen tree is short lived, and ere much of a growth is attained a cross-section in the majority of instances will show a discolored centre of incipient decay, involving half or two-thirds of its entire diameter, with a sound white sap zone on the outer circumference, next the bark. This sound healthy zone nourishes the tree, until the decayed core discovers itself in some withered limbs, and frequently the top of the tree manifests the canker.

"Such trees the Red-naped Sapsucker selects for its nesting-site, and with great perseverance chisels through this tough, sound zone, from an inch to an inch and a half through — commencing with a very small hole and gradually extending its circumference with each stage of the deepening process, working from the lowest centre out, till the exact circumference of the intended aperture of entrance is attained. In thus radiating in circles from the central point, the minute chips are chiselled out with considerable ease. This mode of working is observed until the tough zone is worked through; what remains then is comparatively easy work; the soft, soggy, lifeless inside is worked into and downwards, with greater facility, and a roomy, gourd-shaped excavation quickly follows, the female doing the excavating from beginning to end, and, according to exigencies, completes it in from six to ten days.

"Some idea of the vitality and toughness of this zone of sap in a live aspen tree may be realized, when in a tree used consecutively three or four years, which if undisturbed is the general custom of *S. varius nuchalis*, the entire aperture will be almost closed by the recuperative agent in the sap of the tree to heal and close up the wound. No other Woodpecker will face such a formidable task. *Picus villosus harrisii* comes next as a borer; then follows *Sphyrapicus thyroideus*. Both of these species nest sometimes also in apparently live aspens, but upon close inspection such trees will be found to be badly decayed.

"*S. varius nuchalis* usually insists upon a new excavation each year. The height of nesting-sites from the ground varies from five to thirty feet; the full set of eggs is four or five in number, sometimes a smaller number of eggs mark a full set, presumably the nest of one of last year's young birds. Fresh eggs may be looked for in Colorado from June 1 to 15, and should the first set be taken, a second one may generally be found in from ten to fifteen days later; and as a rule the second nesting-site will not be greatly distant from the first one. Several nests of this species may be found within a short distance of each other in the same aspen grove."

Two sets of four eggs each of this species, taken by Mr. Gale and kindly presented to the National Museum, Washington, D. C., measure as follows: 1st set, taken June, 1884, four eggs, .91 × .67, .90 × .68, .89 × .68, .88 × .64 inches; 2nd set, taken June 1, 1887, .90 × .69, .90 × .69, .90 × .68, and .89 × .65. A set of three eggs taken by the writer in the Blue Mountains, Grant County, Oregon, June 12, 1877, measures, .90 × .65,

.90 × .64, .88 × .66 inches. A second set, taken at the same place a year later, on June 2, 1878, measures .89 × .68, .84 × .66, .82 × .66 inches. A third set, taken by me near Fort Klamath, Oregon, on June 3, 1883, contained five eggs partly incubated; two of these were broken in chopping them out; the remaining three measure as follows; .84 × .68, .84 × .66, .82 × .66 inches. A single egg taken also near Fort Klamath, Oregon, June 5, 1883, measures, .89 × .64 The average measurement is .88 × .66 inches. These eggs, like those of all Woodpeckers, are pure white after blowing; they are generally ovate in shape, and but moderately glossy or lustrous.

My own limited observations during the breeding season bear out Mr. Gale's statements completely, viz., that this species breeds exclusively in live aspen trees. Dr. J. C. Merrill, U. S. A., in Bull. Nutt. Club, October, 1881, states, however, that he found a nest of these birds in a dead cottonwood tree in Montana. In Southwestern Oregon, in the mountain parks of the Klamath Lake region, these birds breed sparingly at as low an altitude as 5000 feet, and it is more than probable that at a higher one, near the summit of the Cascade Range, they may be quite common.

In the Blue Mountain region, in eastern Oregon, I only found them breeding in the single locality already mentioned, at an altitude from 6000 to 7000 feet. During the winter months I have occasionally observed a Red-naped Sapsucker in the Harney Valley in Oregon, busily engaged in hunting for food amongst the willow thickets found growing along the banks of the small streams, in that sage-brush-covered region, often long distances away from timber of any size. In the young birds of the year of *Sphyrapicus varius nuchalis*, the red or crimson markings found about the head and throat of adult birds are usually wanting or else are replaced by a pale claret-colored tinge on the corresponding parts. The black on the back and wings is also duller and not so deep, and the general pattern less distinct.

3. **Sphyrapicus ruber.** RED-BREASTED SAPSUCKER.

This handsome representative of the genus *Sphyrapicus* seems to be strictly confined to the Pacific Coast region, occurring only as far eastward as the eastern slopes of the Sierra Nevada Mountains in Central and Northern California, and the Cascade

Range in Oregon and Washington Territory, passing thence northward through British Columbia well into Alaska. In the winter it is found in the mountains of Southern California, but I do not believe that it breeds there. In my various travels throughout the interior of Oregon, Nevada, Washington and Idaho, covering over fifteen years, I never met with this bird till the summer of 1882, when I was ordered to take station at Fort Klamath, located near the northern end of Klamath Lake, in the southwestern part of Oregon. Here I found the Red-breasted Sapsucker an abundant summer resident, and I have no doubt a few of these birds winter in the more sheltered portions of the deep cañons of the lower Klamath River region. They are among the earliest birds to arrive in the spring. The first bird of this species shot by me in the spring of 1883 was obtained on March 13, and I have seen a few as late as November. On one of my collecting trips, the morning of April 4, 1883, while riding through a patch of pine timber near Wood River, the principal stream running through the centre of Klamath Valley, I noticed a flock of these birds, at least twenty in number. They were very noisy, apparently glad to get back to their summer homes, and seemed to have an excellent time generally, flying from tree to tree and calling to each other.

As I wanted a couple of specimens, I was compelled to disturb their jollification; those procured were both males, and presumably the entire flock belonged to this sex. By April 20 they had become very common, and some pairs at least were mated and had already selected their future domiciles—in every case a good-sized, live aspen tree. The males might at that time be heard in almost all directions drumming on some dry limb, generally the dead top of one of these trees. They scarcely seemed to do anything else. At least five pairs nested within half a mile of my house, and I had excellent opportunities to observe them. Some birds, apparently more industrious than others, would not be satisfied with one burrow, and excavated several, sometimes all in the same tree; others contented themselves with a single one. It is possible that the extra ones, after being begun, were abandoned, either being found to be too damp inside, or for some other cause unknown to me, or they may have been made by the male for his own use to pass the nights in, and be close to his mate in case of danger, or again, just to keep his bill in practice, chiselling. I am myself inclined to think that the female does nearly, if not quite all the work on the burrow in which she deposits her eggs.

These birds are not at all shy during the breeding season, allowing you to approach them closely, but they have an extraordinarily keen sense of hearing. I frequently tried to sneak up to a tree close to my house which I knew had been selected by a pair of these birds, to watch them at work, but I was invariably detected by the bird, no matter how carefully I tried to creep up, before I was able to get within thirty yards, even when she was at work on the inside of the burrow and could not possibly see me. The bird would cease working at once, her head would pop out of the hole for an instant, and the surroundings be surveyed carefully. If I kept out of sight and perfectly still, she would probably begin working again a few minutes afterwards, but if I moved ever so little, without even making the least noise, in my own estimation, she would notice it and stop working again at once. If the tree were approached too close she would fly off, uttering at the same time a note resembling the word *jay* or *chäe*, several times repeated, which would invariably bring the male around also, who had in the mean time kept himself busy in some other tree, either drumming or hunting for food. While the female was at work on the inside of the burrow, the male would from time to time fly to the entrance and look in, probably asking his mate how her work was coming on, how soon they might begin housekeeping, etc.; and at other times he would hang for five or ten minutes even, just below the entrance to the burrow, in a dreamy sort of study, perfectly motionless and seemingly dazed, evidently thinking of the family responsibilities that were soon to come.

I am inclined to think that this species does not indulge in the habit of girdling trees for the sap, and the soft inner bark (cambium) to the same extent that *Sphyrapicus varius* does, at any rate not during the breeding season. These birds were, as I said before, extremely abundant in the vincinity of Fort Klamath, and this being the case, evidence of their work in this direction should have been rather common. I don't remember having seen more than two instances, showing extensive and systematic signs of girdling; one, a medium-sized cottonwood limb, showed the punctures all over for a distance of three feet, the other, a species of mountain ash, on which none of the shoots were over three inches through, had been riddled all over by the birds. These mountain ash shrubs, none of which grow to any size, were rare, however, in that vicinity.

In its range, I think this species breeds at a lower altitude than *S. varius nuchalis*. Fort Klamath, however, although but 4200 feet above sea level, has a very cool summer climate, frosts occurring almost in every month of the year. The surrounding country is very beautiful at that time. Heavy, open forests of stately pines and firs, amongst these the graceful and beautiful sugar pine, are found on the mountain sides and reaching well down into the green park-like valleys. Interspersed here and there are aspen groves of various extent, their silvery trunks and light green foliage blending artistically with the sombre green of the pines. These aspen groves are the summer home of the Red-breasted Sapsucker.

As far as my own observations go, healthy, smooth-barked aspens are always selected as suitable nesting-sites by these birds. The trees used vary from 12 to 18 inches in diameter near the ground, and taper very gradually. The burrow is usually excavated below the first limb of the tree, say from 15 to 25 feet from the ground. The entrance seems to be ridiculously small for the size of the bird, perfectly circular, from 1¼ to 1½ inches in diameter only, so small indeed that it seems as if it took considerable effort for the bird to squeeze himself in, and wriggle out of the hole.

The gourd-shaped burrow varies in depth from six to ten inches, and it is from three inches, near the top, to four or five inches wide at the bottom. The finer chips are allowed to remain in the burrow, forming the nest proper, on which the eggs are deposited. Frequently they are more than half covered by these chips. The interior of the entire excavation is most carefully smoothed off, which must consume considerable time, considering the tough, stringy and elastic nature of the wood, when filled with sap, making it even more difficult to work when partly decayed, which seems to be the case with nearly all aspens of any size. Probably eight or ten days are consumed in excavating a satisfactory nesting-site. All the larger and coarser chips are dropped out of the burrow and scattered about the base of the tree. From the quantity of these found under every tree, occupied by these birds, during the nesting season of 1883, I am inclined to believe that they are only satisfied with an entirely new burrow every year, and not simply with an old one repaired to answer the purpose. These same chips are an extremely simple and sure guide to their nest.

In hunting for them I looked for the chips on the ground first, and after finding these it did not take long to find the hole from which they came. In this manner it was an easy matter to find their nest, and I took no less than fifteen sets of their eggs in a single season, and might have taken more had I been so inclined, especially by following up the birds for their second set, where they had been robbed previously. Ordinarily but one brood is raised in a season.

The number of eggs varies from five to six to a set. Full sets of fresh eggs may be looked for in that locality from May 20 to June 5, and I have taken nearly fresh eggs as late as June 13; I took my first set on May 23, 1883. It contained six fresh eggs, and the burrow was about seven inches deep, the entrance about eight inches below and directly under the first limb of the tree, as usual a live aspen, about 18 feet from the ground. While the nest was being rifled of its contents, both parents flew about the upper limbs of the tree, uttering a number of different sounding plaintive cries, like *peeya*, *pinck*, and *peurr*, some of these resembling somewhat the purring of a cat when pleased and rubbing against your leg. I used to note the different sounds in a small note book at the very time, but scarcely ever put them down alike; each time they appeared a trifle different to the ear, and it is a hard matter to express them exactly on paper.

The eggs, when fresh and before blowing, like those of all Woodpeckers, show the yolk through the translucent shell, giving them a beautiful pinkish appearance, as well as a series of straight lines or streaks of a more pronounced white than the rest of the shell, running towards and converging at the smaller axis of the egg. After blowing, the pink tint will be found to have disappeared, and the egg changed to a pure delicate white, the shell showing a moderate amount of lustre. There is considerable variation in their shape, running through all the different ovates to an elongated ovate. The average measurements of sixty specimens now before me are .94 × .68 inches; the largest egg in the lot measuring 1.00 × .70, the smallest .86 × .68 inches.

Both sexes assist in incubation, which lasts from twelve to fourteen days, I think. Their food consists principally of grubs, larvæ of insects, various species of lepidoptera which they catch on the wing, like Flycatchers, and berries. Of the latter quite a number of different edible species are found about Fort Klamath, and they seem to be especially fond of wild strawberries, which grow there in abundance. The young after leaving the nest stick to the tree in which they were hatched for the first day or two, without venturing to fly.

The beautiful carmine or crimson on the head and breast in the adults is replaced by claret-brown in the young, varying in amount and intensity in different individuals; in some it is very distinct and prevalent. The yellow so plainly noticeable on the belly of adult birds is also wanting in the young. The colors throughout are much duller and the general pattern less distinct. By the latter part of September, the majority of these birds leave for their winter haunts, only a few stragglers remaining. These are possibly birds that breed further northward and winter in the warm valleys of Northern California, and are then comparatively near the end of their migration, remaining in the Klamath Valley region where there is always an abundance of food for the Woodpecker family, judging from the number of different species of these birds found there throughout the year, till the heavy winter snows drive out the less hardy, amongst which the Red-breasted Sapsucker must be included.

While stationed at Fort Klamath, Oregon, I took especial pains to collect a good series of both adult and young birds of this species, as well as a number of sets of their eggs, and devoted considerable time, at no little inconvenience to myself, to observe their general habits closely. Although my personal observations differ materially from those of other naturalists (see 'History of North American Birds,' by Baird, Brewer, and Ridgway, Vol. II, pp. 544 and 545), I am confident that they will be found substantially correct by future observers. The egg described in the above-mentioned work, purporting to belong to this species, certainly does not, and I also doubt very much that these birds ever breed in coniferous trees of any kind.

4. **Sphyrapicus thyroideus.** WILLIAMSON'S SAPSUCKER.

This interesting species is so unique in the entire difference of coloration of the sexes, that for a long time they were considered and described as separate species. It remained for Mr. H. W. Henshaw, then attached as Naturalist to Lieut. George M. Wheeler's expedition, engaged upon the geographical exploration of Colorado and New Mexico, in 1873, to establish their identity, he finding the supposed two species paired and breeding near Fort Garland, Col., in June of that year. Like *Sphyrapicus varius nuchalis*, it has an equally wide and extended range, reaching from the eastern slopes of the Rocky Mountains to the western spurs of the Sierra Nevada and Cascade Ranges in California and Oregon. In its habits, however, it differs considerably from the three other species of the genus *Sphyrapicus*, all of which seem to prefer regions abounding in deciduous trees, and using these as far as at present known, exclusively for nesting purposes, while Williamson's Sapsucker gives the preference to coniferous forests, selecting pines to burrow in, at least as frequently as aspens, and according to my own observations oftener than the latter.

Although it undoubtedly occurs in the region intervening between the Rockies on the east, and the Cascades on the west, I cannot positively recall a single instance where I have seen this bird in the entire mountain system, beginning at the Bitterroot Range in Montana in the east, following the continuation of this through the Blue Mountains of Washington Territory and Oregon, as well as most of the Salmon River mountain country in Idaho Territory, till I first met with it on the eastern slopes of the Cascade Range near Fort Klamath, Oregon, in the autumn of 1882. It was here Dr. Newberry obtained the type of the so-called *Sphyrapicus williamsoni*. Here I saw it for the first time on September 23, and as late as November 8, of the same year, taking specimens on both dates. Strange to say, all the birds I saw and secured for a period covering about five weeks, at that time, were females, and I only succeeded, on October 28, in seeing and obtaining my first male of this species. It was obtained under rather peculiar circumstances. I had only to walk a couple of hundred yards from my house to find myself in a fine open pine forest. Gun in hand I, as usual, took a short stroll that morning, following close along the banks of Fort Creek, directly east of the post, towards its source, and I had not proceeded more than half a mile from my house when I saw two males chasing each other about a dead pine stump, and uttering at the same time shrill cries; this is what attracted my attention to them. I tried to get within ordinary shooting distance of them, but they took alarm and flew in opposite directions before I was near enough. Nevertheless I took a snap shot at the one nearest to me, but it continued its flight apparently uninjured, crossing the creek, which was too deep and cold for me to ford, about sixty yards in advance of me, and much to my disgust disappeared in the heavier pine timber on the opposite side, without stopping while it was in sight. As it was useless as well as impracticable to follow this one, I kept on in the direction the other had taken, but failed to see it again. Fully an hour afterwards, on my way returning to the post, and when within a few yards of the place where I first noticed the two birds, tired out and disgusted, I sat down on an old log and was taking a rest, absorbed in reflections on my bad luck, when from quite a distance, I noticed a black-looking bird flying towards me, coming from the opposite side of the creek, and from the same direction the one I shot at had taken earlier in the morning. Its flight was so peculiar and strange, constantly sinking, that I refrained from shooting when it first came within range. No wonder; it was its last expiring effort, and it actually dropped within a yard of where I was sitting. It was unquestionably the very bird I had shot at more than an hour before; no one else was out hunting at the time, as no other shots were heard. A single No. 12 pellet had penetrated the lungs, and the bird in its dying struggle had evidently tried to reach the same stump again on which I noticed it at first.

My earliest record for 1883, on which I obtained a specimen, a male, was March 20. It seems to me to be a more solitary bird than *S. ruber*. I never saw more than two together or in close proximity of each other. It is also more shy, and does not allow itself to be approached so readily as either of the preceding species. Its breeding range extends, near Fort Klamath, from an altitude of about 5000 feet to the higher peaks of the Cascade Range, which attain in that vicinity a height of about 9000 feet. On the mountain slopes about Crater Lake, it seems to be most abundant, but not as much so as *S. ruber* is in the lower valley, where almost every aspen grove harbors a pair of these birds. Crater Lake itself is such a strangely interesting and unique freak of nature, the peer in sublime grandeur of the Yosemite Valley in California, and the Yellowstone Park, with its grand cañons and geysers, in Wyoming, and so little known withal, that I am sure the readers of 'The Auk' will forgive me the transgression of interlarding a short description of it in this paper. The lake is about seven and a half miles long and six wide, and unlike anything found in this or any other country. It is situated on the summit of the Cascade Range, about twenty-five miles north of Fort Klamath, at an altitude of about 7500 feet; the highest peak in the vicinity reaches up to 9000 feet. The rocky walls surrounding it on all sides are nowhere less than 1000 feet, and in places more than 2000 feet high, in many points almost perpendicular, so that a stone can be thrown without striking anything on its way till it reaches the water, fully 2000 feet below. It is said to be some 1800 feet deep, and in places is probably more. One cannot realize the magnitude of this hole in the ground without seeing it. A mountain the size of Mt. Washington, the highest peak of the White Mountains in New Hampshire, might be dumped in, and not fill it up then. The water is beautifully clear, and deep azure blue in color; the the only living thing seen on it on a visit to the lake on July 27, 1882, was a solitary female Wandering Tatler (*Heteractitis incanus*), apparently very correctly named. An island, covered with good-sized trees, rises out of the water to a height of nearly a thousand feet, on the west side of the lake. It is composed mostly of volcanic scoriæ and pumice, and evidently was the principal cone of the now extinct crater, traces of whose activity in former times, in the shape of heavy pumice deposits, can be found for fifty miles inland to the east, on the road from the De Chutes River to Fort Klamath. There is only one place from which the shore of the lake can be reached with comparative safety, and even from there it is by no means an easy matter. But enough of the lake.

Mr. Gale, who is quite familiar with this species, writes me that in Colorado they nest sometimes at an altitude of 10,000 feet, and that they are generally distributed between that limit and 8000 feet. The nest-sites, he says, are as often met with in moderately thick woods as in the more open clearings and isolated pine trees and shrubs, the only condition guiding their choice of a home being a shelter from the strong west winds. My own observations agree pretty well with his. He says: "A marked peculiarity I have noted with *S. thyroideus* is that the male takes a lookout station upon some suitable tree, where at the approach of any possible danger he gives the alarm by striking a short dry limb with his bill, by which a peculiar vibrating sound is given out, which the female, not very distant, fully understands, and is at once on the alert. If either excavating, guarding or covering her eggs, she will immediately look out of her burrow, and should the intruder's path lie in the direction of her nest, she will silently slip away and alight in a tree some distance off, but in view of both her nest and the intruder. The first or second blow of your hatchet upon the tree trunk in which the nest is excavated will mark her movement again by a short flight, so managed as not to increase the distance, in fact oftener coming nearer. When satisfied that her treasures have been discovered, she utters a peculiar, low grating sound, not unlike the purr of a cat. The male then comes to the fore and braves the danger, is very courageous, and should the eggs be far advanced by incubation, he will enter the nest when you are almost within reach of it. When the latter is rifled, he is always the first to go in and discover the fact, repeating the entrance and exit business several times, in a surprised sort of manner. The large gaping opening, made by the robber's hatchet, he seems to ignore altogether. To him it seems impossible that a few minutes only suffices to cut through the wall of wood that took his mate as many days of hard labor to accomplish. Presently he is joined by the female, a joint inspection is made, a verdict of grand larceny quickly reached, and the conclusion arrived at, 'well, we shall have to try again, with the hope of better luck next time.'"

Nidification is similar to that of the other species of the genus, with the exception of the difference in the matter of trees preferred already mentioned. The height of nesting-sites varies considerably, say from five to sixty feet, and perhaps more still in exceptional cases. Fresh eggs may be looked for, according to altitude, from May 20 to June 15; Mr. Gale took a fine set of six, which I judge to have been perfectly fresh, from the exquisite manner in which they are prepared, on May 26, 1887.

I obtained my first set of eggs of this species on June 3, 1883, about nine miles north of Fort Klamath in the open pine forest on the road to Crater Lake. It consisted of five eggs, slightly incubated. The burrow was excavated in a partly decayed pine, whose entire top for some twenty feet was dead. Height of burrow from the ground about fifty feet. The man climbing the tree stated it to be about eight inches deep, and about five inches wide at the bottom and freshly made. A second set, of six fresh eggs, was taken June 12, of the same year, about twelve miles north of the post, at a still higher altitude than the first one. It came also out of a pine about forty feet from the ground. A third nest, found a week later near the same place, contained five young just hatched. This nest was in a dead aspen about twenty feet from the ground. The full number of eggs laid appears to be five or six. These are pure white, a trifle less lustrous than those of *S. ruber;* they are a little more elongated and pointed in shape, some approaching a distinct ovate pyriform or pear shape, a characteristic not apparently found in the eggs of the other species of this genus. The average measurements of seventeen specimens now before me are .97 × .67 inches. The largest in the lot measures 1.02 × .68, the smallest .94 × .67 inches. Only one brood is raised, and, like the two other species, it is only a summer resident in the vicinity of Fort Klamath. Its food seems to consist almost exclusively of insects and their larvæ, various species of lepidoptera and an occasional grasshopper. Berries I think are seldom used by them.

I have found fully fledged young in July; a young female shot July 21 must have left the nest certainly by the beginning of the month. When the young are large enough to fly they are not at all rare at the lower altitude of Fort Klamath. They show the same difference in coloration in the sexes, in their first plumage, with these exceptions: the young males lack the red on the throat, which is replaced by dirty white, the sulphur yellow on the lower parts is mostly wanting, a slight trace of it being noticeable on some specimens, and the black on the back is much duller. The young females differ likewise by the absence of yellow on the belly, the black patch on the breast is wanting, the markings and barrings on the upper parts are less distinct, and the colors generally duller.

In its undulating flight from tree to tree, this species utters a shrill note like *huit*, *huit*.

From the foregoing description and measurements of the eggs of the different species of the genus *Sphyrapicus*, it will be seen that the eggs of *S. varius* are the smallest; those of *S. varius nuchalis* come next in size; then *S. ruber*, and those of *S. thyroideus* are the largest.

The following additional species of the Family Picidæ, occur in the vicinity of Fort Klamath, Oregon.

Dryobates villosus harrisii.
Dryobates pubescens gairdnerii.
Xenopicus albolarvatus.
Picoides arcticus.
Ceophlœus pileatus.
Melanerpes formicivorus bairdi.
Melanerpes torquatus.
Colaptes cafer.

All of these species breed there more or less commonly, excepting *Melanerpes formicivorus bairdi*, which occurs only as a straggler on the eastern slope of the Cascade Range, owing to the absence of oaks, but is quite abundant on the western side of these mountains, wherever oaks are found, especially so near Ashland and Jacksonville, Oregon, in the Rogue River valley. I shall have something to say about the nests and eggs of some of these species in a future paper, having found them all breeding there, and taken the eggs of all excepting *Ceophlœus pileatus*.

NEW AND RARE BIRDS FOUND BREEDING ON THE SAN PEDRO MARTIR ISLE.

BY N. S. GOSS.

The island, a rock about one and a half miles long, nearly as broad, and 1045 feet in height, is situated in the Gulf of California, a little north of latitude 28°, and not far from midway between shores. I was enabled to visit the same through the kindness of Mr. E. J. Reed, of Guaymas, Mexico, agent for the San Francisco Phosphate and Sulphur Company. I landed from their little steamer that takes out supplies, March 15, 1888, and remained until the 28th. The Company has a large force of Yaquie Indians collecting the guano that has formed a crust on the rocks of from one to four inches in thickness. The island has been worked for the past three years; notwithstanding this the following described birds continue to breed there, and as the guano of value will be collected within the next six or eight months, the birds will then have undisturbed possession, except upon the rare appearance of roving bird collectors; but as the isle is uninviting and without fuel or water, such visits will be of short duration. The following is a low estimate of the birds breeding there, viz.: Blue-footed Booby, 1000; Brewster's Booby, 700; Red-billed Tropic Bird, 80; Mexican Raven (*Corvus corax sinuatus*), 100; a few Western Gulls (*Larus occidentalis*), and perhaps a few other birds; it was too early in the season to determine this, but it does not appear to be a general breeding place for birds, though a natural one for the Boobies, and when undisturbed thousands upon thousands will breed there. The tenacity with which they cling to their breeding grounds is surprising. One hundred and thirty-five Indians were on the payroll and many had their families with them, and in working and climbing over the isle, they were continually disturbing and often robbing the birds. In this respect, however, the Indians are not as destructive as the white race, and as the Company feeds them well, seem to care but little for the eggs, but the thievish Ravens are ever on the watch and ready to drop upon the eggs or the little ones the moment the parent birds are driven away.

NOTE.—In the identification of the Boobies I am greatly indebted to Mr. Robert Ridgway, who not only placed before me the specimens of the family in the National Museum, but kindly aided in the examination and comparison.

Sula gossi *Ridgw.* (MS.), sp. nov. BLUE-FOOTED BOOBY.

SP. CHAR.—Head, neck, and entire lower parts white, the first two streaked with sooty grayish, back and scapulars dusky brownish, tipped with whitish, legs and feet bright blue in life.

Adult male.—Iris yellow; bill dull olive blue; bare space around bill, eyes, lores, and gular sac slate-blue; legs, feet, and webs bright clear ultramarine blue with a slight greenish tint on webs; claws pale glaucous blue; feathers of head and neck grayish white, widely edged in middle portion with dark sooty grayish, their lanceolate tips pure white, producing a wavy streaked appearance; these markings become obsolete on the anterior part of the forehead, and on the throat for some distance behind the gular sac, and are nearly uniform grayish white; lower neck and entire lower parts, including flanks, axillaries, and most of the under wing-coverts, pure white, broken only on the sides of the lower neck by rather indistinct broad streaks of pale sooty grayish, changing posteriorly next to back into more distinct spots of a deeper hue; feathers of back and scapulars deep sooty grayish or grayish brown, rather broadly but not abruptly tipped with dull white, these terminal spots larger and more distinct on posterior scapulars; wing-coverts entirely plain grayish brown or light sepia, deepening gradually into sooty slate on primaries; lower back and lower rump pale grayish sepia, fading gradually into white on upper tail-coverts; the upper parts of rump chiefly pure white; middle tail-feathers white, faintly shaded on outer portion of outer web for about the terminal third with pale brownish gray, their shafts entirely clear yellowish white, the outer pair wholly sooty grayish (darker terminally and on most of outer web), the others gradually paler towards the middle pair.

Adult female.—Essentially like the male, but differing in the following particulars: Iris paler yellow, plumage somewhat darker, except the hind neck, which is less distinctly streaked, and size larger.

The following measurements are from specimens saved, the first two are in the Goss Ornithological Collection, the last two in the National Museum:

Length.	*Stretch of Wing.*	*Wing.*	*Tail.*	*Tarsus.*	*Bill.*	*Weight.*
34.50	66.00	16.75	9.70	2.20	4.70	4 1-4 lbs.
33.00	63.00	15.75	9.00	2.10	4.10	3 "
33.50	65.00	16.50	8.70	2.20	4.50	3 15-16 "
32.00	62.00	15.50	9.50	2.10	4.20	2 10-16 "

The birds make no nests and lay but one egg; this they drop upon the smooth rock, often in exposed situations, preferring the places where the guano had been removed and, in many cases, close beside the winding paths that were hourly trodden. I found no young birds, and from the condition of the many eggs examined, think they do not commence laying before the 1st of March. Average measurement of 21 eggs, 2.42 × 1.60; ground color greenish blue, coated with a dull white chalky substance, but generally more or less stained with the guano that gives them a dirty buff white look; in form elliptical ovate.

Sula brewsteri,* sp. nov. Brewster's Booby.

Sp. Char.—Similar to *S. sula*, but mantle ending uniform in color with head and neck, the last two paler, especially in the male, in which the neck is pale drab gray fading into white on anterior portions of head; un-feathered parts also differently colored. Iris dark brown with a narrow ring of grayish white around the outer edge; claws glaucous blue.

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*To my esteemed friend, William Brewster, Cambridge, Mass.

Adult female. — Bill pale bluish horn fading after death, and towards the base, to a dull dirty buff; lores slate-blue, bare space around eyes, and gular sac, pale yellowish green; legs, feet, and webs lighter in color and with more of a yellow look; head, neck, breast, and upper parts of body rich drab brown or sepia, deepening on primaries and rectrices into seal brown, the shafts of the feathers black; underparts, posterior to breast, pure white.

Adult male.—Bill olive blue, lores and bare space around eyes indigo blue, gular sac dull slate-blue with a greenish tint; legs, feet and webs light pea-green; the body similar to the female but a little paler, and the breast fading forward into sooty drab; anterior parts of head and throat white, the rest of head and neck drab gray, deepening back, and on the under sides shading into the color of the breast.

Length.	*Stretch of Wing.*	*Wing.*	*Tail.*	*Tarsus.*	*Bill.*	*Weight.*
29.50	56.50	14.35	8.00	2.00	3.75	2 12-16 lb.
31.00	59.08	15.60	8.00	2.00	4.00	3 1-16 "
29.60	55.50	14.48	8.00	2.00	3.90	2 8-16 "
31.50	59.50	15.60	8.25	2.00	4.00	3 "

The above measurements are from specimens saved; the first two are in the Goss Ornithological Collection, the last two in the National Museum. I, however, measured others; the females in all cases were the largest.

The birds were not wild, but their nesting places as a whole were not in as exposed situations as those of the Blue-footed; they seemed to prefer the shelves and niches on the sides of the rocks. They lay two eggs, and in all cases collect a few sticks, seaweed, and often old wing or tail-feathers; these are generally placed in a circle to fit the body, with a view, I think, to keep the eggs that lie upon the rock from rolling out. There is but little material on or about the isle out of which a nest can be made.

The birds must commence laying as early as the 10th of February, for I found in many cases young birds from half to two-thirds grown—white, downy little fellows with deep bluish black skins—that, in places where they can, wander about regardless of the nests where they were hatched. Average measurement of 17 sets of their eggs, 2.44 × 1.60. In color and form, as well as in size, they are similar to the eggs of the Blue-footed, in fact so near alike that when placed together they cannot be separated with any feeling of certainty; therefore in collecting I was careful to mark each set before they left my hands.

Phaëton æthereus *Linn.* Red-billed Tropic Bird.

The birds breed in holes and crevices on the sides of the steep cliffs that often overhang the water; many were inaccessible. I was therefore able to reach and examine but few of their nesting places. These were without material of any kind for a nest; the egg (for they lay but one) was upon the bare rock. In nearly all, however, I found a young bird, about half grown; from this I think the birds begin to lay as early as the middle of February. With the aid of the Indians, who are expert climbers, I was only able to procure and save seven of their eggs. The ground color is dull grayish white, rather finely and evenly sprinkled with deep claret brown, generally thickest at large end, the specks running largely together, giving the eggs a clouded or marbled look. In form they are ovate. Measurements of the same, 2.31 × 1.71, 2.40 × 1.72, 2.40 × 1.78, 2.26 × 1.71, 2.49 × 1.81, 2.40 × 1.69, 2.38 × 1.68. When approached the birds within their homes do not attempt to leave, but vigorously defend the same, striking and biting with their strong, pointed, sharp-edged, jagged bills, lacerating the ungloved hand that dares intrude, uttering at the same time a loud, harsh, rapid *che-che-che-che-che-che-che*,—notes of defiance, and often heard in their rival flights. The birds are very beautiful, and cannot fail to attract attention, especially when in the air, by the peculiar rapid stroke of their wings and graceful waving motion of their long whip-like tails.

FEEDING HABITS OF SOME YOUNG RAPTORES.

BY H. JUSTIN RODDY.

All raptorial birds, whether juvenile or adult, eat large quantities of food when it can be obtained. But they are able to endure long fasts. Digestion is rapid, as is absorption. In from one-half to one and a half hours after eating the stomach is empty, as are also the greater part of the intestines.

Young rapacious birds eat more than the adult birds, since both sustenance and growth must be provided for. By careful comparison I think they eat more than those of any other class of birds. The actual quantity may not be so great but when quality is considered in connection with quantity the amount is greater. Their food is largely animal, the nutrient quality of which is of the highest character.

The great amount of nutriment is essential for their active life and predatory habits, in which the highest muscular exertion is necessary for securing their prey. The amount of food, therefore, is only an essential condition of their active life.

Cathartes aura. — A young Turkey Buzzard gorges itself with food to such an extent that it can hardly move. One will eat at a single meal a whole water snake (*Tropidonotus sipedon*) three feet long, as a young one once in my possession frequently did. Before it had a single feather it ate a house snake, three and a half feet long, equal in weight to one-fifth that of the bird. And in one and a half hours it was entirely digested, as I determined by killing and dissecting it at the end of that time.

The young birds are fed for a considerable time by the parents by ejection of food from the crop or stomach, where it had either been softened or partially digested. The young insert the opened bill into the mouth of the parent, and drink the food from it much as a fowl drinks water. The food is, probably, always quite moist or juicy, thus furnishing drink to the young bird at the same time.

The young birds kept in captivity drank water freely from any vessel as a fowl drinks, but were fonder of drinking from some vessel, as a bottle, with a narrow opening partially inverted, that the liquid might flow out. This must be because it is similar to the opened bill of the parents.

They are very fond of thrusting the bill into the opening formed by the partially closed hand. I inferred from this fact the manner of feeding before I had an opportunity of observing it.

They are fond of being caressed, or at least handled, especially so while feeding. In a few days after being placed in captivity they become fond of being handled, and soon follow persons about like dogs. They express pleasure by a low hiss; displeasure by a more forcible hiss.

They have a strong antipathy to dogs and express their displeasure the moment one appears in sight. Possibly they mistake them for foxes, in whose company, or rather in proximity to whose dens, I have sometimes found the young in their nests. If a dog approaches near enough, the young Buzzard will attack him with bill, claws, and wings, using them very effectively.

Accipiter cooperi. — A young Cooper's Hawk I took from the nest when quite small, probably not more than two weeks after being hatched. It was without any difficulty reared to full size; indeed, to more than full size, for the abundance of good food and favorable conditions made it attain a more than ordinary size. In length it grew two and a half inches, and in alar expanse four inches, greater than the largest specimen in my collection, or of which I had any record.

It was a great eater. When six weeks old it ate nine English Sparrows (*Passer domesticus*) and a common mouse (*Mus musculus*) in one day; and ate on an average eight Sparrows a day from that time until it was ten weeks old.

At first I removed the remiges and rectrices and some of the other stiffer feathers of the birds I fed it. But when it had attained considerable size I gave it its food without such preparation. The bird ate them, feathers and all. This, however, influenced the amount it ate, — as one would naturally suppose, since these larger feathers filled up the crop and stomach, sometimes giving the bird trouble to eject them when the digestible portions had been absorbed. After attaining full growth it gradually came to be more choice in the selection of food, and always removed all of the larger feathers.

The bird became very much attached to me, and even when it could fly and was allowed its liberty did not leave, but returned every few hours for its food, which I always liberally provided. How long it would have continued to do this I do not know, as the experiment ended with its death. It was shot by one who did not know it was my pet.

In eating the bird tore its food to pieces with the bill, nearly always beginning at the entrails. It almost always seemed to relish the intestines more than any other part of the bird or animal, sometimes eating only this part and leaving the rest. When the bird or animal was still warm and the blood therefore uncoagulated, it tore it open and apparently bathed the bill in the blood and the visceral juices. It apparently sucked up these fluids in order to allay thirst. But I invariably found it refuse water,—in this respect acting quite differently from the *Cathartes aura*, which drank water freely.

It rejected cold and stiff birds which had lain a day or more, especially when abundance of food was furnished. Perhaps this is owing to the coagulated condition of the blood and the drying up of the visceral juices, of both of which it appeared to be so fond.

It made no sounds to express pleasure or displeasure during captivity, but when free and flying made the sounds common to the adults of this species.

Buteo pennsylvanicus.—Side by side with the *Accipiter cooperi* I reared a *Buteo pennsylvanicus* of about the same age. The characters of the two birds were essentially different. The fierce aspect of the Accipiter showed itself quite early, and indicated by its every action its rapacity and daring. The Buteo, on the other hand, was mild in appearance and never exhibited the fierceness nor voracity of the Accipiter.

But I succeeded better in petting the latter. It seemed to grow rapidly fond of my company. The Buteo, however, neither expressed pleasure, nor showed displeasure upon my coming near it, though it would make itself felt when one attempted to handle it. It never, however, used its claws with the same spirit as the Accipiter. I could handle the latter with impunity after it grew to know me. Strangers, it fought with spirit and resisted all their attempts at familiarity. The Buteo regarded all alike, seemingly neither as foes nor as friends.

Its voracity was not nearly so great as that of the Cooper's Hawk. It never at any time ate more than five Sparrows a day, and generally fewer than five. It, too, was more dainty in its feeding, nearly always pulling the feathers before eating. It was fond of insects, especially preferring grasshoppers, and ate frogs and fish with apparent relish. This the Accipiter did only when very hungry.

If any preference was shown by these Hawks in the selection of food, it was for food in the form of warm birds. And I experienced some difficulty in procuring enough Sparrows for them. I wished to supply in abundance the food they preferred, in order to make the conditions of their growth most favorable, and further to test their effect upon physical organization. The effects were apparent in larger size and more robust physique.

The Buteo never fed in my presence with the same freedom that the Accipiter did, nor were its actions so free. The latter's boldness and daring manifested themselves in every action.

Syrnium nebulosum.—Lastly I had a juvenile Barred Owl in my possession. In it, as in the others, abundance of food produced the same effects—larger size and more robust organization. The food most preferred was birds and small rodents; frogs and fish were eaten when quite fresh, though the latter were taken only when hungry. Insects, too, were eaten.

Digestion was rapid, requiring about one and a half hours for the digestion and absorption of a pair of Sparrows. Birds were always eaten without pulling a feather. If not too large they were swallowed whole, for the throats of young Owls are quite capacious. The indigestible parts are ejected when digestion is completed.

The Owl never, except once, fed knowingly in my presence (and it was difficult to observe its habits without its knowledge). Its sense of sight is so acute, and its range of vision so extended, that I was compelled to use many devices to deceive the bird and accomplish my purpose of observation without being observed. The food put into its cage was seldom eaten until pressed by hunger, and the bird never ate in a day more than one-third the quantity of food eaten by the Accipiter in the same time.

It could not easily be petted, nor did it acquire a fondness for being handled. Indeed it seemed to remain unaffected by kindness, and to love solitude.

NOTES RELATIVE TO THE SENSE OF SMELL IN THE TURKEY BUZZARD (*CATHARTES AURA*).*

BY C. L. HOPKINS.

DURING the recent months there has been a good deal of discussion in several of the scientific and sporting papers regarding the sense by which Buzzards find their food; and while taking a good deal of interest in it myself, I also take it for granted that others have followed the discussion with interest; and so I am prompted to give here some notes of my own of observations made during a residence of something over two years in Southern Florida.

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* Read before the Biological Society of Washington, D. C.

Early in my sojourn there I was told of instances in point by some of the old 'Crackers,' all bearing out the assumption that these birds do find their food by the sense of smell, at times unaided by sight, and I often found opportunity for observing the habits of these birds in this respect.

When I first located in Florida, in the year 1884, the festive and rather racy razor-back descendant of the Guinea hog and a very thin shadow of the past, was quite plenty in the immediate neighborhood of my home.

My place was situated upon the eastern bank of a small lake, about three-fourths of a mile in diameter; beyond this to the southward stretched an expanse of some three miles of meadow, dotted here and there by hummocky islands, which islands, together with a stretch of dense hummock, which began at the southwest side of the lake, and merged at the west into a magnificent piece of palmetto and live oak hummock, known as Cabbage Island, were favorite night roosts and day haunts of large numbers of the Turkey Buzzard.

I have often seen them rise from their roosts in the morning, after drying off their damp plumage, and when the morning breeze had freshened up to a strong rate,—and here let me note that, as far as my observation goes, upon damp, foggy or dewy mornings, these birds never left their roosts till after things were pretty thoroughly dried off, and a strong morning breeze was blowing,—and, ascending by soaring circles high into the air, drift off *across* the wind, till, apparently striking a scent, they would in a body move away *up* the wind to disappear in the distance, or, as in several instances in my knowledge, to locate and settle upon carrion known to me, or within my sight.

I have also seen them drifting along *with* the wind till, striking a scent, they would work *back up* the wind, and settle down to feast. Taking into account the fact that they had drifted some way past the spot at last located, before locating it, it would seem to prove that they had *not seen* it in passing at first, but only took cognizance of it after striking the current of air which carried the scent.

I have, upon two occasions, seen them come into view at a great altitude, and sailing down *into* the wind, pass by, one after another, with a rushing sound and great velocity, until a dozen to twenty or more had come into view, bound for some carrion which was beginning to 'smell to heaven,' carrion which I knew of, and knew to be concealed in dense scrub growth. In one case of a large wild boar killed and left in a dense growth of scrub higher than my head, and in which it was almost impossible to make any headway, and which was a mass of verdure overhead, the Buzzards found the place and were perched all about on the scattering trees; but I saw none down in the brush, which was so dense I almost doubt the possibility of their rising out of it if once they had got in. It would have been a case of wonderfully sharp vision which could have discovered this, unaided by any other sense. A 'razor-back,' killed and dressed in the morning, in a dense growth of palmetto, overtopped by high, dense brush, all of it higher than a man's head, and the offal thrown out of the way, back into the growth, was found by the Buzzards before night. I do not think it was possible for it to have been seen from above.

In the case of offal taken and covered up with care under a pile of muck and weeds, when it was old enough to throw off a strong smell, the Buzzards scented it, but had not noticed or descended to the spot before.

While plowing at one time, I killed a quite large coach-whip snake, and turned a furrow over it, covering it up completely from sight; the next day the Buzzards had found the place and were down tramping about over the spot in their efforts to find and get it out.

Scrap meat and lungs, from dressing meat, were put into my poultry house, which was shut up, with the exception of a small, low opening into the high picket yard about the building; the Buzzards were attracted in a couple of days, and haunted the spot as long as any smell was left; this occurred a number of times.

One morning I shot and killed a skunk upon the bank of the lake just in front of my house. With a hoe, I pulled it out from the brush and roots, dug a hole and buried it, covering it completely. Going to the house I awaited developments; the wind was then in the northeast; in less than a half hour there were over forty Buzzards collected there on neighboring trees and the ground, all having come from the southwest, off over the meadow, appearing in sight and coming straight *up the wind*. The birds unearthed the carcass and held a great war-dance and pow-wow over it. At another time, in the pine timber along the north shore of my lake, I drove another skunk into a hole, by clubbing, and stopped the hole up with sticks; in a short time there were several Buzzards investigating the cause of the outbreak, from the trees about the spot.

A box which had been leaning up by the side of my poultry house was blown down, or tipped down by hens flying upon it, and a chicken crushed under it, of which I knew nothing; but noticing the Buzzards sitting about the place on the trees and fence, I wondered what attracted them there, and soon after, upon moving the box, I found the dead fowl beneath. There was no other carrion present, to my knowledge, at the time.

These facts, while all showing conclusively to my mind that Buzzards do find the location of at least some of their food supply by means of a sense of smell as keen as that of a fox, yet it does not preclude the possibility or the probability that they are often guided or aided in location by a sight as keen as the sense of smell seems to be.

NOTES ON THE BIRDS OF FORT KLAMATH, OREGON.

BY DR. J. C. MERRILL, U. S. A.

With remarks on certain species by William Brewster.

[*Continued from p. 146.*]

Ceryle alcyon. Common in summer, several remaining throughout the winter.

Dryobates villosus harrisii. This was the most common species of Woodpecker during autumn and winter, and at that season more often found among aspens than were the others. This is the only place in the West where I have found *harrisii* to be more abundant than *gairdneri*. About the middle of March and later, as the breeding season approached, they became shy and restless, the males drumming loudly on the dead top of some lofty pine, but ceasing whenever they were approached.

[Seven specimens collected by Dr. Merrill, with a single exception, are typical examples of a Woodpecker which of late years has been very generally if not exclusively called *P. harrisii* but which Cabanis and Heine very properly separated from that form as long ago as 1863.* Audubon's type specimens of *harrisii* came from the Columbia River, and both his plate and description show that they were decidedly brownish beneath. In the series furnished by my own collection, as well as that belonging to the National Museum, I find that all specimens from the Pacific Coast north of San Francisco to Puget Sound are similarly characterized. The depth and extent of the brownish varies, however, with different localities. The most extreme specimen—from Neah Bay, W. T.— has only the wing spots white, all the other light areas, both above and beneath, being smoky brown. Col. N. S. Goss, to whom I am indebted for this specimen, tells me that all the birds which he shot at Neah Bay were equally brown. Those which I have seen from Northern California, however, are somewhat lighter beneath, and the light space on the dorsum is usually pure white. Audubon's types, which were probably taken at some distance inland from the mouth of the Columbia, had the light stripes on the head as well as the middle of the back. Thus it is probable that the birds obtained by Col. Goss represent the extremes of the smoky Northwest Coast form, which to the southward and eastward shades insensibly into *hyloscopus*. In fact, one of Dr. Merrill's skins clearly proves such intergradation, for it has the breast decidedly brownish and the throat slightly so, while the abdomen, flanks, and light areas of the tail-feathers are essentially white.

Picus hyloscopus was based on the "*P. harrisi* from Southern California and New Mexico," which, the describers state, "differs from *harrisi* of the Columbia River Region in being smaller, and white instead of brownish, beneath." All the so-called Harris's Woodpeckers which I have seen from the interior of Western North America north of Mexico have the light areas, both above and beneath, essentially pure white, although the breast and tail-feathers are often superficially soiled or stained by contact with burnt trees or decayed wood. There is little variation among them excepting in size, those from the southern border averaging somewhat smaller than more northern ones. It is possible that, as material accumulates, it will be found necessary to separate this white-breasted Woodpecker into two forms, a large northern and a small southern one. For the present, however, they may be best treated as one, for which the name *hyloscopus* should be used.—W. B.]

Dryobates pubescens gairdneri. During my residence at Fort Klamath I paid especial attention to the Woodpeckers at all seasons, yet I saw but three specimens of this species; the dates were Nov. 17, April 28, and May 11.

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* Mus. Hein., IV, p. 69.

Xenopicus albolarvatus. This interesting Woodpecker was first observed November 9; by December it had become rather abundant and so continued until the latter part of February, but after the middle of March none were seen. During the breeding season careful search failed to reveal its presence near the Fort, nor was it found in the higher mountains north of the valley in July and August. One would think that the peculiar coloration of the White-headed Woodpecker would make it very conspicuous and its detection an easy matter, but this is by no means the case, at least about Fort Klamath. On most of the pines in this vicinity there are many short stubs of small broken branches projecting an inch or two from the main trunk. When the sun is shining these projections are lighted up in such a manner as to appear quite white at a little distance, and they often cast a shadow exactly resembling the black body of the bird. In winter when a little snow has lodged on these stubs the resemblance is even greater, and almost daily I was misled by this deceptive appearance, either mistaking a stub for a bird or the reverse.

I have rarely heard this Woodpecker hammer, and even tapping is rather uncommon. So far as I have observed, and during the winter I watched it carefully, its principal supply of food is obtained in the bark, most of the pines having a very rough bark, scaly and deeply fissured. The bird uses its bill as a crowbar rather than as a hammer or chisel, *prying* off the successive scales and layers of bark in a very characteristic way. This explains the fact of its being such a quiet worker, and as would be expected it is most often seen near the base of the tree where the bark is thickest and roughest. It must destroy immense numbers of Scolytidæ, whose larvæ tunnel the bark so extensively, and of other insects that crawl beneath the scales of bark for shelter during winter. I have several times imitated the work of this bird by prying off the successive layers of bark, and have been astonished at the great number of insects, and especially of spiders, so exposed. As the result of this, and of its habit of so searching for food, the White-headed Woodpeckers killed here were loaded with fat to a degree I have never seen equalled in any land bird, and scarcely surpassed by some Sandpipers in autumn.

Though not shy, and with care generally approachable to within a short distance, it is watchful and suspicious, and seems to know very well what is going on even if it does not see fit to fly away, though it is more apt to do this than to dodge around the trunk. The flight is direct, and rather slow and heavy. Its skull is noticeably less hard and dense than that of *D. harrisii* or *P. arcticus*. During the winter it is silent, the only sound I have heard it make being a harsh screech when wounded.

[Dr. Merrill has called my attention to the following apparent inaccuracies in the description of this Woodpecker by our leading authorities. (1) The statement usually made without qualification that the entire head is white. In the series of twelve specimens before me (five from Fort Klamath, five from Blue Cañon, California, and two from San Bernardino, California) the crown and forehead are decidedly grayish, varying from smoky gray to drab gray in rather strong contrast with the silvery white of the throat, jugulum, and sides of the head. Capt. Bendire in Birds S. E. Oregon* says: "The white about the head is always soiled, becoming a light smoky gray." But as far as my series goes to show this gray is confined to the top of the head. Nor can I believe that it is a stain, for the top of the head is certainly not more exposed than are the jugulum and neck; moreover the gray is quite as deep in fresh-plumaged autumn birds as in those in worn breeding dress. Indeed among the specimens before me it is deepest in a young bird just from the nest. A more or less strong tinge of saffron or clay color often found on the nasal bristles and occasionally, also, on the forehead, may be, however, a true stain. Two of the females before me have the sides and posterior portion of crown barred faintly with dusky.

(2) Mr. Ridgway, in considering the generic characters of *Xenopicus*, has laid stress on "the fact that the tongue is scarcely extensile, its tip, when fully protruded, reaching only ¾ of an inch beyond the end of the bill, just the same as in *Sphyrapicus thyroideus*, while in *Picus villosus harrisii* the protrusion amounts to 2½ inches, or 1¾ inches more.†

In referring to this statement Dr. Merrill wrote me from Ft. Klamath under date of Jan. 6, 1887: "I have just killed a female *albolarvatus* and male *thyroideus*, and the following is the result of a careful examination and comparison. The tongue of *albolarvatus* extends exactly 1.30 inches beyond the tip of the bill, and this without any pulling but by gently drawing it to the full length. The tongue of my male *thyroideus* extends barely .20 of an inch." It is evident from this testimony that the character noted by Mr. Ridgway is too variable to be worth much.

(3) Mr. Ridgway says:‡ "Fourth and fifth quills equal and longest; tip of the first equidistant between sixth and seventh." In my series the first quill is always "spurious," never exceeding an inch in length. The second quill is sometimes scarcely longer than the eighth but is usually about intermediate between the seventh and eighth. In five specimens the fourth quill is longest; in four the fourth and fifth quills are about equal and longest. —W. B.]

Picoides arcticus. Rather common resident, but in the summer more frequently seen in the surrounding mountains than in the immediate vicinity of the Fort. Several nests were found early in July, but the young were fledged. The excavations were in dead young pines and not more than five or six feet from the ground, in the latter respect differing from those of the other Woodpeckers found here, all of which, so far as I have observed, make their holes at a greater height.

[Three specimens taken at Fort Klamath by Dr. Merrill differ appreciably from eastern birds in being larger, with longer and much narrower bills, and in having the nasal bristles nearly or quite black to their bases. Upon examining the series in the National Museum, however, I find that out of eighteen western specimens (Montana, Nevada, Utah, California, Oregon, and Alaska) only three exhibit the peculiarities just mentioned, and these three are from Fort Klamath (Coll. Capt. Bendire). It is evident, therefore, that if the Klamath birds represent a distinct form, that form has a very limited distribution. Until this is better known it seems wisest to let the bird in question stand as *P. arcticus.*—W. B.]

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* Proc. Boston Soc. Nat. Hist., Vol. XIX, p. 129.

† Proc. Nat. Mus., Vol. III, p. 6.

‡ Birds N. A., Vol. II, p. 526.

Sphyrapicus ruber. Common summer visitor, arriving about the middle of April and frequenting groves of aspens, being rarely seen among pines. It is rather shy, and specimens were procured with some difficulty. The stomachs of several were examined and contained fragments of insects only. It is a rather noisy bird, and its snarling or whining note is often heard. In Baird, Brewer and Ridgway's N. A. Birds, Vol. II, p. 544, the bill of this species is said to be brownish wax color; in my fresh specimens it was bluish black.

[An adult female taken May 11 shows an apparent approach to *S. v. nuchalis* in having a well-marked red nuchal band separated from the red of the crown by a blackish bar about .10 of an inch wide. This specimen also has a good deal of black mixed with the red of the breast, and there is a white stripe extending back along the side of the head below the eye, as in *S. nuchalis.*—W. B.]

Sphyrapicus thyroideus. A not uncommon resident, but shy and very suspicious. A noticeable habit here is the frequency with which it works down as well as up a trunk, and when one dodges around a tree, in which, by the way, it is unpleasantly expert, it is as apt to reappear twenty feet below where it was last seen, as above. In searching for food it will often work up and down a favorite tree repeatedly. In all its movements it is quick and active, and gives one the impression of being thoroughly wide awake, which impression the would-be collector is speedily convinced is correct. This Woodpecker is a rather silent bird as to hammering, and is especially partial to young pines, with the soft inner bark of which, and fragments of insects, the stomachs of the adults are usually filled; but the young birds appear to feed exclusively upon insects during the autumn.

In preparing skins of this and the succeeding species, I have had no difficulty in drawing the skin of the neck over the skull. Two nests, found June 20 in large dead pines, were each at a height of about sixty feet; they were inaccessible, but contained young, apparently nearly fledged, to judge by the noise they made. Each nest I watched for some time; the males brought food about twice as often as did the females, and frequently removed the excrement of the young on leaving the nest, alighting on the nearest tree for a moment to drop it and to clean their bills; I did not see either of the females remove any excreta. About four feet above one of the holes was another occupied by a pair of Pygmy Nuthatches, but neither species paid any attention to the other when they happened to arrive with food at the same time.

Melanerpes torquatus. None were seen until the morning of May 2, when several were in and about the Fort, their very characteristic flight, notes, and habits at once betraying their arrival. Rather uncommon during summer, nesting usually near the tops of tall dead pines, especially isolated ones, from which they can obtain a good view of passing insects, which they will often follow to a considerable distance. About the middle of August many arrive from the north and gather in large flocks, sometimes of one or two hundred. They now feed largely on grasshoppers, for which they search in fields and along roadsides, and at a little distance are easily mistaken for Blackbirds.

Colaptes cafer. Seen once or twice only during the winter. In April they pass north in great numbers, and many remain to breed. Migrants were first seen March 14, and were abundant on and after the 20th.

Chordeiles virginianus. First heard on May 30 before sunrise, and within a week were fairly abundant. By the middle of June they were very common, and so continued till autumn.

[Dr. Merrill's Klamath series includes six adults, two males and four females. These are certainly much nearer to *virginianus* than to either *henryi* or *sennetti*, although they average rather paler than eastern specimens. In one of the males the white on the wing involves the shaft and a portion of the outer web of the outer primary. In both males the white on the tail is continuous across both webs of all the feathers.—W. B.]

Chætura vauxi. During the early autumn of 1886 this species was very common, leisurely migrating in flocks of from fifty to one hundred or more, and keeping well out of gunshot.

In the following spring they were first seen May 6, when a flock of about twenty was observed flying low over a meadow, and one was shot; no note was heard and they soon disappeared. No others were noted until the 19th, when four were seen pursuing insects above the tops of the highest trees. After this they became quite common, and so remained during the summer. While collecting in the marsh on the third of June a cold wind from the mountains suddenly arose; following the insects in their lowered flight, many Cliff and Tree Swallows that had been flying at a height of several hundred feet came within easy range, and among them were a few Swifts, of which I shot six in as many minutes. Four of them were males and two females; the ovaries of the latter were scarcely enlarged, and they certainly would not have bred for a month; the salivary glands of both sexes were of equal size; the legs and feet were purplish, the irides brown.

While the flight of Vaux's Swift is usually higher than that of the eastern species, and it is generally more difficult to obtain, yet if their habits are closely studied it will be observed that there are times and places where they may be shot without especial difficulty. The height at which they fly depending on that of the insects upon which they feed, they may be most readily secured soon after sunrise; as the day grows warmer and the insects fly higher they follow them and are soon out of gunshot range for the rest of the day, unless a change in the weather should occur. Had I made a specialty of collecting these Swifts, I could readily have shot several dozen during the season.

As observed at Fort Klamath this bird is not at all crepuscular; the notes differ somewhat from those of *pelagica*, though of the same character, and are less frequently uttered.

Trochilus rufus. Only two specimens observed during the spring and summer, a male taken May 17 and another seen May 22.

Trochilus calliope. First taken May 17. A few Hummers, apparently of this species, had been seen for ten days before this date, but they were not abundant until the 16th, after which the males were common about the blossoms of wild currant and gooseberry bushes. During the breeding season they are generally distributed, and are to be found in deep pine woods as well as in more open places, the constant sharp shrill notes of the males indicating their presence and abundance. When pairing soon after their arrival, and with less frequency during the period of incubation, the males have a habit of poising themselves for some seconds at a height of thirty or forty feet above the ground, and then dashing down nearly to the earth, rising as quickly to poise again, and repeating the manœuvre often; at such times their notes are particularly loud, and attract attention from a considerable distance.

A nest brought to me about the middle of July, and which the young had just left, was placed upon a dead flattened cone of *Pinus contorta*. It was composed of thin strips of a gray bark, with a few spiders' webs on the outside; the lining was similar, but with a few small tufts of a cottony blossom from some tree; the nest was just the color of the cone, and was admirably adapted to escape notice. Another nest containing two nearly fledged young was found at about the same time, but was quite unlike the one just described in construction and situation, being of the common Hummingbird type and saddled upon a dead willow twig. One of the young birds lived for about a week, becoming very tame and feeding greedily upon syrup.

Baird, Brewer and Ridgway in N. A. Birds (Vol. II, p. 445) assert that the folded wings reach beyond the tail; that the under mandible of the male is "yellow"; that the length of the male is 2.75. I examined eight males and one female. In none of them did the folded wings extend beyond the tail. The average length of the males was 3.20 inches, the extremes were 3.10 and 3.30. The length of the single female was 3.35. The males had the upper mandible dead black, the lower mandible light flesh color darkening towards the tip which was black; the feet dark flesh color, the irides brown.

Tyrannus verticalis. Three or four specimens were observed in the autumn of 1886. One specimen only seen in the spring, on May 4.

Contopus borealis. Breeds sparingly among the pines, and generally distributed, but nowhere common.

Contopus richardsoni. Very common summer visitor, arriving about May 25. In July, when the young have left the nest, the males are especially noisy, and their loud *tweer* or *deer* note is heard till long after sunset. From published descriptions it would seem that this Pewee in the Rocky Mountain region usually builds its nest in an upright fork, much as Traill's Flycatcher does; while near the Pacific Coast the nest is saddled on a horizontal limb, like that of the Wood Pewee, but is not covered with lichens. At Fort Klamath the nests are usually built on a horizontal pine branch, often at a considerable height; sometimes they are placed against upright twigs, at others merely saddled on the bare limb. Only one nest was found in an aspen tree. They averaged rather deeper than nests of *C. virens*, and were not coated with lichens. This species and *E. obscurus* were very abundant until August 17, and during that day also; but in the night there was a sharp frost, and the next day and thereafter none were seen.

Empidonax pusillus. Arrived about the last of May, and soon became abundant. Its favorite haunts, and to which it seems to be strictly limited, are the young willows growing along most of the streams, just such places as I have observed *E. traillii* to frequent in the East, and which species it greatly resembles in its habits and mode of nesting.

Empidonax hammondi. A male obtained May 12 and another August 16. No nests were found nor were any specimens taken during the breeding season, and I am inclined to believe that Hammond's Flycatcher occurs in this vicinity as a migrant only. Early in July, while in the mountains north of the valley and at a height of about five thousand feet, a pair of Empidonaces were observed that were certainly neither *pusillus* nor *obscurus*. They may have been *hammondi*, but I think they were probably *difficilis*. Unfortunately they were so shy that I was unable to shoot either of them.

Empidonax obscurus. A very common summer visitor, arriving somewhat earlier than does *E. pusillus*. During the breeding season Wright's Flycatcher is usually found in groves of aspens in company with the Warbling Vireo; also among pines with Cassin's Vireo and Richardson's Pewee. The nests are most frequently built in young aspens at an average height of about six feet. They resemble nests of the Yellow Warbler which are found in the same localities, but all the nests of this Flycatcher that I have found in aspens at Fort Klamath were built against the main trunk, while all of the Warbler were on branches and generally higher from the ground. The nests are composed externally of strips of light gray bark of about the same color as the bark of the aspens, and partly on this account, partly because they are against the trunk of the tree, they are apt to escape notice unless a careful search is made. The lining is sometimes a smooth felted mass of fur and horse hairs, at others feathers are used, and the nests are generally more deeply cupped than is usual with this group. Pairs that are found among the pines usually place their nests in an upright form of a manzanita or buckbrush bush that grow abundantly in such localities. They are more bulky, as a rule, and not so neatly made as when built in aspens, but in other respects are similar. The eggs are dull buffy white; seven sets of twenty-seven eggs average .68 × .53, the extremes of the sets being .65 × .50 and .72 × .57.

[A young male with stub tail, and wings only about two-thirds grown, taken July 13, differs from adults only in having the top and sides of head decidedly grayer, the wing-bands lighter and more buffy, and the underparts, especially the breast and flanks, strongly buffy. The adults collected by Dr. Merrill show a wide range of variation in size and color and some of them resemble *E. hammondi* very closely.—W. B.]

Otocoris alpestris strigata. Rather rare in winter, a few coming about the houses and stables during the deep snow in February. In the latter part of March many were found in a wet meadow (but which later in the season is dry) bordering the marsh. Here there are many little ridges rising a foot or two above the general level and but a few feet in width; the tops were, however, dry and in many places bare; to these the Larks were closely confined, each pair having its own limited range. On April 23rd and 25th they were mostly paired, and fifteen specimens were taken, ten males and five females; the testicles of the males were very large, but dissection of the females showed that they would not have laid for about a month. At this time, and for several weeks, the males are in full song, which is most often heard about sunrise and sunset, and is uttered as they perch in their peculiarly erect attitude on a stone or cow 'chip.' Often they rise high in the air, sometimes quite out of sight, and fly in circles for many minutes; when so doing their song is repeated more frequently than when on the ground, perhaps four or five times a minute, and at these moments they poise with set wings and are almost motionless. The height at which they fly is so great that often they may be seen to poise, and then to resume their circling flight before any note reaches the observer.

Of two females taken May 23, one contained an egg almost ready for extrusion, the other had very recently deposited her eggs and was sitting. Many pairs were observed, but for some days no nest was found. The male, who is constantly on the watch, seems to call the female off the nest when an intruder is still at a distance; several times I saw one approaching her mate, shaking her feathers and having evidently just left the eggs, but my efforts to flush one off the nest were fruitless though I made three visits to this locality before sunrise on cold windy mornings in hopes that at such a time they would sit close. In this respect these birds differ, at least in this locality, from the *arenicola* form, many of whose nests I have found in Montana.

Though within a limited area the Larks were very common, and the nesting site of each pair could easily be located within a few yards, it was only after many hours of very thorough and careful search and watching that on May 30 a female was seen to leave her completed nest. On June 4 this contained two eggs but was deserted, a horse having stepped on one edge and crushed it down, but fortunately without breaking the eggs. These measure .79 × .61 and .81 × .62, and bear a general resemblance to eggs of the other forms of this species, but having none of these at hand for comparison as this is written I will not describe them at length here. I believe these are the only eggs of *strigata* as yet collected, and the second set found.* This nest was placed at the base of, and partially under, a raised clod of earth; a low weed concealed it from above, and it was admirably hidden; the rim was flush with the surface of the ground, and in composition and construction it was like Montana nests of *arenicola*, but was perhaps rather deeper than the average of these.

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* See Auk, Vol. III, p. 166.

On June 17 another nest was found after much search in the meadow in front of the Fort;* it was placed under a weed growing on a wide, but low mound, deeply sunken in the earth, and contained three young about five days old, which were covered with a brownish yellow down. Four days later I again visited this nest, but one of the young had disappeared; the feathers of the remaining two were quite well developed and were blackish, widely edged with white, and as these colors were about equal in extent the young presented a peculiar marbled appearance; on the crown the light tips to the feathers were triangular in shape. On June 25 these young had abandoned the nest, but after some search I found one of them on bare ground about one hundred yards away. On July 1 I shot both parents and the other young, a male, now about nineteen days old and fully grown, flying as well as its parents. It is of interest to note that this female contained two eggs, one of which was almost ready for extrusion, and she had apparently just laid an egg.

There seems to be a good deal of uncertainty as to the number of eggs usually laid by the Shore Lark. Though unable to look the matter up thoroughly as I write this, it may be noted that Baird, Brewer and Ridgway merely quote Audubon's statement that four or five eggs are laid; that Dr. Coues, in 'Birds of the North West' and 'Birds of the Colorado Valley,' says nothing as to the number; in the latest edition of the 'Key,' that four or five are laid; and that Mr. Ridgway in his 'Manual' says three to five. My own experience, mostly with the *arenicola* form in Montana, is that three eggs constitute a full set though four are not infrequently found.

[*Young, first plumage* (♂ Fort Klamath, July 1, 1887, J. C. Merrill, M. D. No. 695). Above brownish black, the exposed surface of the closed wings bright hair-brown; entire upper surface conspicuously variegated with white or soiled white markings, those of the nape fine flecks, of the top of head sharply defined deltoid spots, of the back, scapulars, wing-coverts, and rump broad terminal bars; wing quills tipped with white and bordered along the outer webs with sandy buff; tail with the middle pair of feathers sandy brown, the others dull black, all the tail-feathers tipped and edged outwardly with white, this edging broadest, embracing most of the outer edge, on the outer pair of feathers; underparts soiled white, the cheeks and jugulum flecked with dusky, the breast and sides obscurely spotted with dull black, the remaining under surface immaculate. Dr. Merrill's series includes eight specimens in unmixed first plumage; of them, two are essentially similar to the bird just described and with it are easily separable from the corresponding stage of *O. a. praticola* by the much more numerous and conspicuous white markings of the upper parts as well as by the whiter, less spotted underparts; from that of *arenicola*, *chrysolœma*, and *rubeus* by the much darker ground color above and the almost total absence of buffy or cinnamon tints either above or beneath; of the remaining five, four have the upper parts, especially the wings and tail, strongly tinged with dull cinnamon; three specimens approach dark examples of young *arenicola*. The eighth Klamath bird is plain dull seal brown above with but few and faint light markings. It is in worn and probably faded plumage. In the large series of adults collected by Dr. Merrill I find a good deal of variation with respect to the sharpness of the dark streaking above as well as the depth and extent of the vinaceous tints; only a few birds are as heavily streaked as Mr. Henshaw's description indicates, and but two have any yellow on the breast, while none show any yellow on the underparts posterior to the breast. A female taken Feb. 27, however, has the entire underparts (excepting, of course, the black cravat) pale primrose yellow. There are two similar examples in a series of some forty specimens collected at Klamath in September and October, as well as several with decided yellow breasts.—W. B.]

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* The parents were one of the few pairs that were observed in the valley in dry open ground; but only in the colony near the marsh above referred to, and which a circle of about a mile in diameter would enclose, were the Larks at all common.

Pica pica hudsonica. Common in winter in and about the Fort, being attracted by the abundance of food. They visit the stables, yards, hencoops, and 'dump pile,' and are interested observers when a steer is butchered. During the deep snow in February they passed much of their time perched on the backs of the mules and horses. Late in March they began to leave for their nesting places, a favorite one being along the shore of Klamath Lake at Modoc Point. Here there is a dense growth of willows and plum brush extending for several miles, but usually only a few feet or yards in width. The stage road runs by the side of, and sometimes through, this strip, and on either side the nests, new and old, may be seen by dozens. A few pairs build along Wood River and other streams in the valley near the Fort, and among willows growing in the marsh. The nests are too well known to need description here; the eggs, from five to seven or eight in number, rarely nine, are placed either upon the bare mud bottom or upon a few fibrous rootlets that serve as an apology for a lining over the mud. The first set of eggs was taken at Modoc Point on April 8.

Cyanocitta stelleri. Common resident, and especially numerous about the Fort. Found to be rather scarce in the mountains in July and August, and rarely seen above sixty-five hundred feet.

[Two specimens, both adults, collected by Dr. Merrill, agree closely with some of the Crested Jays taken at Fort Walla Walla by Capt. Bendire,* having the general coloring of the head, neck, and back nearly, if not quite, as blackish as in true *stelleri*, but showing fully as much blue streaking on the forehead as in *frontalis*. They are evidently intermediates nearest *stelleri*.—W. B.]

Perisoreus obscurus. None were noticed about the Fort during the winter, though they are known to occur there sometimes at that season.

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*Bull. N. O. C., Vol. VII, No. 4, p. 229.

In July and August I found this Jay abundant in the mountains north of the valley, roaming in families among the higher fir woods to which they were closely limited.

Corvus corax sinuatus. Common in winter, especially about the lake and marsh, fish and an occasional dead horse or steer supplying their food. They breed in the surrounding mountains.

Corvus americanus hesperis. Rather common in winter and in early spring. Rare in summer, but a pair or two breed among willows in the marsh, and in July a few were observed near the edges of Klamath Marsh.

Picicorvus columbianus. The movements of Clarke's Crow are uncertain, depending largely on the supply of pine cones. During my residence at Fort Klamath it was quite scarce, not more than six or eight having been seen in the immediate vicinity. In July and August it was common about Crater Lake and among the mountains north of the valley, where its summer range extends considerably lower than that of the Oregon Jay.

Cyanocephalus cyanocephalus. A large flock of these Jays passed most of the winter within a few miles of the Fort, and were especially noted by the settlers, as the birds were new to most of them and were said to be very rare visitants. They were noisy, and at once attracted attention as they moved rapidly through the pines, and once visited the Fort in their wanderings. This flock was last seen about March 20, though I heard a single bird in pine woods near Williamson's River on May 21.

Xanthocephalus xanthocephalus. Breeds abundantly in the marsh among the tules, where fresh eggs were taken from the latter part of May till July. Whatever may be the case elsewhere, in this vicinity the males do not desert their mates during incubation, as has been stated to be their habit.

Agelaius phœniceus. Very common in the marsh by the latter part of March. Nests found May 27 contained half-grown young. None were found in the willows that the birds frequent, but all were placed in tussocks of grass and composed almost entirely of the dead grass of the tussock, the blades being woven so as to form the nest, but still attached by the roots; the new grass growing up partially concealing the nest. Some of them may have belonged to the next species; it was difficult to identify the eggs positively, as the birds were constantly rising, and before I could see whether any particular one had been feeding or had just left its nest, and shoot it, it had joined and become lost in the noisy throng that was circling about.

Agelaius tricolor. A few seen among the common Redwings, the white band on the wings of the males being conspicuous, and readily distinguishing them, when flying, from that species.

Sturnella magna neglecta. Common during summer, arriving March 22, and becoming numerous three days later.

Icterus bullocki. Breeds sparingly at Modoc Point, and more commonly near Linkville. Not observed in the immediate vicinity of the Fort.

Scolecophagus cyanocephalus. Common in summer, and a few pass the winter. Here the nests are almost always placed on the ground.

(*To be continued.*)

DESCRIPTION OF A NEW *TITYRA* FROM WESTERN MEXICO.

BY ROBERT RIDGWAY.

Tityra personata griseiceps RIDGW.

Tityra personata LAWR. Mem. Bost. Soc. II, pt. iii, No. 2, 1874, 289 (Mazatlan and Sierra Madre of Colima); *nec* JARD. & SELBY.

SUBSP. CHAR.—Similar to true *T. personata*, but female much paler and grayer, with pileum and sides of head pale brownish ash-gray, becoming lighter anteriorly, instead of deep brownish gray or grayish brown abruptly contrasted with white of throat; chin without trace of grayish or dusky.

HAB.—Western Mexico (Mazatlan and Sierra Madre of Colima).

Type. No. 58,235, U. S. Nat Mus., ♀ ad., Mazatlan; Col. A. J. Grayson.

DESCRIPTION OF A NEW SPECIES OF HUMMING-BIRD OF THE GENUS *AGYRTRIA.*

BY D. G. ELLIOT, F. R. S. E.

Agyrtria alleni, sp. nov.

Top of head and occiput dark greenish blue, not metallic; nape, back and shoulders, shining grass-green; rump and upper tail-coverts glittering bronze. Tail shining bronze, with the tips of the feathers pale gray, widest on the outermost rectrices, and diminishing to the central ones which have a mere indication of gray at the tip. Wings purplish brown. Sides of neck shining bluish green. Throat and centre of breast white, speckled with shining green; sides of breast and flanks metallic grass-green. Abdomen whitish. Under tail-coverts pale brown, edged with white. Maxilla black, mandible flesh color, tip black, Feet black.

Total length, 3 1-2 in.; wing, 1 7-8 in.; tail, 1 7-16 in.; bill, 3-4 in.

HAB.—Yungas, Bolivia. (Rusby.)

Type, No. 30,784, Am. Mus. Nat. Hist., New York City.

A single specimen of the bird described above was contained in a small collection of birds brought from Bolivia by Dr. H. H. Rusby and purchased by the American Museum of Natural History in New York. My friend, Prof. J. A. Allen, the Curator of the zoölogical department of the Museum, having placed the Hummingbirds contained in the collection in my hands for identification, I have great pleasure in giving his name to this apparently new bird. The only known species with which this one can be compared seems to be the *Thaumatias cæruleiceps*, Gould, P. Z. S. (1860), p. 240, from Bogotá, now I suppose contained in the British Museum collection, but it differs from that bird in some seemingly important particulars. The greenish blue of the head is not shining, but rather dull, and does not extend onto the back of the neck. The tail of shining bronze instead of having "a faint indication of a zone of brown across the outer feathers near the tip," has all the rectrices tipped with pale gray, very conspicuous on the outermost feathers, gradually diminishing in extent to the central pair, which have but an indication of gray at the tip. The under tail-coverts instead of being gray with brown centres, are pale brown with white edges. In size the two species seem to be about equal, except that the tail of *cæruleiceps* is stated to be but *half an inch* in length, while that of *A. alleni* is 1 7-16 inch. It is possible that there may be a typographical error in the figures given of the length of tail in Mr. Gould's species. Professor Allen will later on publish a list of the species contained in Dr. Rusby's collection.

ON A NEW SUBSPECIES OF *AMMODRAMUS SANDWICHENSIS* FROM MEXICO.

BY AMOS W. BUTLER.

CERTAIN peculiarities in some Savanna Sparrows taken by me in the winter of 1879-80, within the Valley of Mexico, induced me to undertake a comparison with the forms generally recognized as Mexican and with the United States form which might possibly extend toward the Mexican plateau in winter. In my studies I have, through the kindness of Mr. Robert Ridgway and Mr. J. A. Allen, been permitted to examine the series of Western and Mexican Savanna Sparrows in the U. S. National Museum and in the American Museum of Natural History. I collected at least six Sparrows of this genus in the district mentioned, five of which I now have before me, one of them being kindly loaned by Mr. F. S. Wright, of Auburn, N. Y.

The specimens differ much from *A. sandwichensis alaudinus*, both in proportions and in being darker. In this they somewhat approach *A. s. bryanti*, but their large bills and brighter coloring, together with the noticeable difference in the pattern of coloration, render it easy to distinguish them.

Ammodramus sandwichensis brunnescens. subsp. nov.

Plateau Sparrow.

Subsp. Char.—Dark as in *A. s. bryanti* but much browner. Bill larger than in any of the subspecific forms, being only exceeded by that of *A. sandwichensis* itself.

Male. Above grayish shaded with light brown; top of head and back heavily spotted with black which is edged with bright brown; secondaries, tertials, upper tail-coverts, and sometimes the primaries and outer tail-feathers, edged with brown varying from cinnamon to chestnut; median stripe buff, superciliary stripe creamy to pale yellow; sides of head grayish brown spotted with black, sometimes a very distinct malar stripe of white or pale buff, below which the black spots are arranged in a stripe; chin and gular region white or light buff almost free from spots; jugulum, breast, and along the sides heavily streaked with dark brown and black and generally tinged with some shade of buff.

Female. Slightly lighter than the male; the brown edgings of the black spots on the back bordered with gray; streaks on the breast and sides smaller, the tinge of buff paler.

Wing, 2.60-2.85; average, 2.746. Tail, 1.95-2.10; average, 2.03. Tarsus, .75-.80; average, .786. Culmen, .42-.44; average .424. Depth, .21-.22; average, .212.

♂ (No. 3, author's coll.) Valley of Mexico, Nov. 20, 1879.
♂ (No. 29, " ") Valley of Mexico, Dec. 8, 1879.
♀ (No. 58, " ") Valley of Mexico, Dec. 22, 1879.
♀ (No. 30, " ") Valley of Mexico, Dec. 8, 1879.
♂ (No. 792, F. S. Wright ") Valley of Mexico, Dec. 18, 1879.

Hab.—In winter the Valley of Mexico.

There are two other specimens besides the five mentioned that appear to be referable to this form. One of these, a female from the valley of Mexico, without date, is now in the American Museum of Natural History, New York. It fulfils all of the requirements except it has a peculiarly light brown tail, while in the types the tails are black. Another (No. 78,124 U. S. Nat. Mus., ♀ ad., Guanajuato, Mexico, A. Dugès), is very much worn and badly discolored. The species is found in considerable numbers among the bushes and grasses along the drainage canals and about the lake shores.

A full series of the Savanna Sparrows is greatly needed from all parts of Mexico and Central America, and it seems not improbable that one or two other forms will have to be characterized before the specimens will begin to fit gracefully into the places assigned to them.

DESCRIPTION OF A NEW *MYIARCHUS* FROM THE WEST INDIES.

BY CHARLES B. CORY.

Myiarchus berlepschii, sp. nov.

Sp. Char. (Type, No. 12,535 Coll. C. B. Cory.) Top of the head dark brown; back and rump distinctly dark olive, shading into rufous on the tips of the upper tail-coverts. Throat pale ashy, somewhat darker on the upper breast; rest of underparts pale yellow. Primaries and secondaries dark brown edged with dull rufous, the rufous color wanting on the terminal portion of the four outer primaries. The primaries show pale rufous on the basal portion of the inner webs. All the secondaries and tertials are broadly edged with pale rufous on the inner webs. Tail dark brown; all the tail-feathers, excepting the two middle ones, have nearly the entire inner webs bright rufous, a narrow line of brown separating the rufous from the shaft of the feather. Bill dark brown. The feet are black.

Length, 7; wing, 3.50; tail, 3.25; tarsus, .95; bill, .65.

Habitat. Island of St. Kitts, West Indies.

The underparts of this species are similar in marking and general coloration to *M. oberi*, but the throat is more ashy and lighter, and the back and head of *M. berlepschii* are darker, and the bird is smaller.

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*Dedicated to Graf Hans von Berlepsch of Germany.

A LIST OF BIRDS OBSERVED AT GAINESVILLE, FLORIDA.

BY FRANK M. CHAPMAN.

GAINESVILLE is situated in the southeastern part of Alachua County, midway between the Gulf and the Atlantic, a position which, during the winter, proved excellent collecting ground for the species which should occur there at that season, but the distance from either coast rendered it a comparatively isolated point during migration.

Evidently the peninsula acts as a wedge dividing into two waves, which flow up either coast, the sea of north-bound migrants; from these waves small streams of summer residents penetrate the interior in search of breeding places, and these, in addition to occasional ripples caused perhaps by a high-tide, constitute the entire migration.

How closely migrating birds adhere to the coast is well illustrated by the fact that of the thirty-five arrivals noted, twenty-six are summer residents of the Louisianian Fauna, leaving but nine strictly transient birds as the number observed, where forty or more might have occurred. The capture of four species which have not, to my knowledge, been before recorded from Florida during the winter, may also be due to this inland position; for these birds probably drifted in with flocks of true winter residents, and being thus removed from the coast currents, were left stranded. The country surrounding Gainesville is favorable for occupation by all the species which should occur there, there being, 'black-jack' and palmetto pineries, hummocks, thickets, clearings, swamps, 'prairies,' numerous small ponds and streams, and Alachua Lake, about nine miles long and averaging two or more in width. This lake, as the chief ornithological point of interest, deserves particular mention; a large portion of its surface is covered with a dense growth of yellow pond lilies (*Nuphar advena*), locally known as 'bonnets,' affording a home to innumerable Coots (*Fulica americana*) and Ducks. At its eastern end is an immense savanna bisected by an inflowing creek, and dotted with clumps of cypresses and numberless small pools. A few years ago Herons were abundant and bred here; today it is comparatively deserted, the result of merciless persecution by plume hunters. One other locality remains to be noticed,—an almost impassable swamp, known as 'Sugar-foot Prairie,' a favorite breeding ground for several species of Herons.

March 8, I visited this place and my notes for that day record: Great Blue Heron, Great White Egret, and Little White Egret, all common; Little Blue Heron, abundant; Black-crowned Night Heron, one; Bittern, three. April 17, 20, and 21, I again went there and the total number of Herons seen on the three days was: Great Blue Heron, two; Great White Egret, one; Louisiana Heron, one; Little Blue Heron, ten.

Later I learned that a plume hunter's camp, with its pile of decaying carcasses, had been found there, and the cause of the disappearance of the Herons was no longer a mystery.

The following notes are based almost entirely on observations made from November 27, 1886, to May 27, 1887; for, although a return was made to the same locality the following winter, my stay was a comparatively short one and permitted but little additional work.

All data, therefore, unless the contrary is stated, refer to the first mentioned period. I have to thank Mr. Roth Reynolds for permission to examine a number of Gainesville birds in his possession, mounted by himself, mention being made in each case when a record is based on such examination.

For comparison I append the mean temperature of each month during the winter and spring of 1886-7: December, 53.2°; January, 50.9°; February, 66.4°; March, 61.8°; April, 68.6°; May, 77.1°.

1. **Podilymbus podiceps.** Pied-billed Grebe. 'Die Dipper.'—Common; none were observed after April 27.

2. **Urinator imber.** Loon.—From March 31 to April 17 about fifteen were seen flying over at a great altitude.

3. **Anhinga anhinga.** Anhinga.—Three extremely wild birds wintered among the cypresses on the lake; April 12 two flocks of seven or eight each were seen passing over, and on the 26th a flock of six more.

4. **Lophodytes cucullatus.** Hooded Merganser.—A rare winter resident.

5. **Anas boschas.** Mallard.—Not uncommon.

6. **Anas obscura.** Black Duck.—Not uncommon.

The Florida Black Duck was not found, and was unknown to local sportsmen, even as a summer resident.

7. **Anas strepera.** Gadwall.—A female was taken February 8, the

first one, I think, reported from the State. Six were seen and one killed January 11, 1888.

8. **Anas carolinensis.** GREEN-WINGED TEAL.—Common.

9. **Anas discors.** BLUE-WINGED TEAL.—Rather more common than the last. Last records were April 27, two, and April 29, one.

10. **Anas americana.** BALDPATE.—Not uncommon.

11. **Spatula clypeata.** SHOVELLER.—A single specimen in Mr. Reynolds's possession.

12. **Dafila acuta.** PINTAIL.—Not uncommon.

13. **Aix sponsa.** WOOD DUCK.—Common resident.

14. **Aythya affinis.** LESSER SCAUP DUCK.—Common.

15. **Aythya collaris.** RING-NECKED DUCK.—The most abundant Duck. At the time of my departure, May 27, a flock of cripples, four males and three females, was in an arm of the lake, and I was told that crippled Ducks (the results of flock shooting during the winter) of different species frequently remain through the summer, but although, as in the present instance, both sexes may be represented, they have never been known to breed.

16. **Erismatura rubida.** RUDDY DUCK.—Not uncommon.

17. **Ajaja ajaja.** ROSEATE SPOONBILL.—None were observed by myself, but three were reported to me by my friend Mr. Bell on April 23, and Mr. Reynolds had a specimen in his collection.

18. **Guara alba.** WHITE IBIS.—March 4, 1887, and January 11, 1888, one observed each day.

19. **Botaurus lentiginosus.** AMERICAN BITTERN.—Locally common.

20. **Ardea herodias.** GREAT BLUE HERON.—Common.

21. **Ardea egretta.** AMERICAN EGRET.—Not uncommon during the winter, and frequently observed until its plumes were sufficiently grown to render them worthy the plume hunter's attention, when it became almost rare and exceedingly shy.

22. **Ardea candidissima.** SNOWY HERON.—The same remarks apply to this species.

23. **Ardea tricolor ruficollis.** LOUISIANA HERON.—Not uncommon. Almost all those observed were adult birds.

24. **Ardea cærulea.** LITTLE BLUE HERON.—The most common Heron. The blue slightly outnumber the white birds, and but three in intermediate plumage were seen.

25. **Ardea virescens.** GREEN HERON.—One seen January 28 was the only one observed until April 4, when new arrivals were noted. They were common throughout May, and on the 25th of that month young just from the nest were taken.

26. **Nycticorax nycticorax nævius.** BLACK-CROWNED NIGHT HERON.—Locally common.

27. **Rallus elegans.** KING RAIL.—Two specimens taken by Mr. Reynolds at the lake.

28. **Porzana carolina.** SORA.—A single specimen in Mr. Reynolds's possession was taken at the lake.

29. **Ionornis martinica.** Purple Gallinule.—None were seen until May 25, when in a part of the lake before unvisited,—a mass of floating islands and 'bonnets',—I found them not uncommon. Four were taken; in the oviduct of one a partially formed egg was found, and several eggs had evidently been deposited.

30. **Gallinula galeata.** Florida Gallinule.—Common resident.

31. **Fulica americana.** American Coot. 'Blue Peter.'—Extremely abundant, every 'bonnet' patch contained its flock, all equally noisy until as spring advanced they became almost silent. A number remained until April 29, all those seen after that date being wing-broken birds, which, unlike the crippled Ring-necked Ducks before mentioned, did not gather in flocks but were met with singly, lurking in the 'bonnets' at the borders of the lake.

32. **Philohela minor.** American Woodcock.—December 3 and 24, one was seen each day.

33. **Gallinago delicata.** Wilson's Snipe.—Locally abundant, sometimes flocks of fifty or more being flushed from favorable feeding grounds. Two seen together April 15, were the last noted.

34. **Totanus flavipes.** Yellow-legs.—A flock of five was seen March 5, and a single bird April 5.

35. **Totanus solitarius.** Solitary Sandpiper.—From April 2 to May 6, twelve were seen or taken.

36. **Bartramia longicauda.** Bartramian Sandpiper. — April 8, two were seen, April 10, three.

37. **Actitis macularia.** Spotted Sandpiper.—From April 27 to May 10, seven were noted.

38. **Ægialitis vocifera.** Killdeer.—An abundant winter visitant. My last records were April 27 and 29, one each day.

39. **Colinus virginianus floridanus.** Florida Bob-white.—Abundant. The call of two, and rarely three, notes was first heard March 17, and although they were now beginning to pair, flocks were seen as late as April 16.

40. **Meleagris gallopavo.** Wild Turkey.—Rare.

41. **Ectopistes migratorius.** Passenger Pigeon.—Said by sportsmen to be a rare winter visitant; Mr. Reynolds had two in his possession.

42. **Zenaidura macroura.** Mourning Dove. 'Dove.'—Common resident.

43. **Columbigallina passerina.** Ground Dove. 'Mourning Dove.'—Common. A nest found May 12, on the ground beneath a small scrub palmetto, contained two eggs.

44. **Cathartes aura.** Turkey Vulture.—Abundant.

45. **Catharista atrata.** Black Vulture.—Abundant. There was apparently little difference in the numbers of this and the preceding species, but the first named was much more common in the town.

46. **Elanoides forficatus.** Swallow-tailed Kite.—April 29, three, May 9 and 10, one each day. All escaped capture.

47. **Ictinia mississippiensis.** Mississippi Kite. — Two were noted April 29.

48. **Circus hudsonius.** Marsh Hawk.—Common.

49. **Accipiter velox.** Sharp-shinned Hawk.—Not uncommon.

50. **Accipiter cooperi.** Cooper's Hawk.—Not common.

51. **Buteo borealis.** Red-tailed Hawk.—Common.

52. **Buteo lineatus.** Red-shouldered Hawk.—Abundant. The nine specimens obtained were all true *lineatus*.

53. **Haliaëtus leucocephalus.** Bald Eagle.—Common.

54. **Falco sparverius.** American Sparrow Hawk.—Abundant resident.

55. **Falco columbarius.** Pigeon Hawk.—A single specimen was taken January 4.

56. **Pandion haliaëtus carolinensis.**—American Osprey.—Common.

57. **Strix pratincola.** American Barn Owl.—I saw but two; one, an almost fully grown male, was brought to me alive May 30. During his short life (his death, June 19, was due to an accident) he proved an interesting but perfectly untamable pet; fresh meat was refused, but Sparrows (*Passer domesticus*) he devoured with great relish, pulling out most of the wing and tail-feathers and swallowing the body without further dissection.

58. **Syrnium nebulosum alleni.** Florida Barred Owl. — Common. Two nearly grown young attended by the parent birds were seen May 9.

59. **Megascops asio floridanus.** Florida Screech Owl.—Said to be common. A single specimen was secured March 12

60. **Bubo virginianus.** Great Horned Owl.—A specimen in the possession of Mr. Reynolds was taken at Gainesville.

61. **Coccyzus americanus.** Yellow-billed Cuckoo.—A not common summer resident. Arrived April 27.

62. **Ceryle alcyon.** Belted Kingfisher. — Common during the winter, but after April 2 their numbers had greatly diminished.

63. **Dryobates villosus audubonii.** Southern Hairy Woodpecker.—Common.

64. **Dryobates pubescens.** Downy Woodpecker. — Slightly more numerous than the last.

65. **Dryobates borealis.** Red-cockaded Woodpecker. — Common, but confined exclusively to the pineries.

66. **Sphyrapicus varius.** Yellow-bellied Sapsucker. — Common, and very generally distributed. Last noted April 21.

67. **Ceophlœus pileatus.** Pileated Woodpecker.—Rather rare. The individuals met with were extremely unsuspicious; I have even placed my ear at the base of the tree on which they were pounding.

68. **Melanerpes erythrocephalus.** Red-headed Woodpecker. — But thirteen birds of this species were seen until April 16, when new arrivals were noted, and after the 26th of that month they were very numerous. This species was common throughout the winter of 1887-88.

69. **Melanerpes carolinus.** Red-bellied Woodpecker.— Abundant.

70. **Colaptes auratus.** Flicker.—Abundant up to the last of March, after which date they were less numerous.

71. **Antrostomus carolinensis.** CHUCK-WILL'S-WIDOW.—Common summer resident.

72. **Antrostomus vociferus.** WHIP-POOR-WILL. —None were heard, and a female, taken March 3, was the only one observed.

73. **Chordeiles virginianus chapmani.** CHAPMAN'S NIGHTHAWK. — Arrived April 17, and became common on the 21st, after which date no change was noticed in their numbers. 'Bullbat,' or as it is more frequently termed, 'Bat,' shooting is here a popular pastime, great numbers being killed for food, and in August, when the birds have gathered in flocks, favorite fields may be occupied at nightfall by as many as a dozen shooters.

74. **Chætura pelagica.** CHIMNEY SWIFT.—Arrived April 5, and was common after the 16th.

75. **Trochilus colubris.** RUBY-THROATED HUMMINGBIRD.—Five were observed from March 8 to April 27.

76. **Tyrannus tyrannus.** KINGBIRD.— A common summer resident. Arrived April 2, and became common on the 5th.

77. **Myiarchus crinitus.** CRESTED FLYCATCHER.—An abundant summer resident. Arrived March 31, and became common April 5.

78. **Sayornis phœbe.** PHŒBE. — An abundant winter visitant, and very generally distributed. Last records were March 21 and April 4, one each day.

79. **Contopus virens.** WOOD PEWEE. — A rather common summer resident, arriving April 7. A nest found May 9 was placed on the horizontal limb of a pine, about forty feet from the ground.

80. **Empidonax acadicus.** ACADIAN FLYCATCHER.— Not uncommon in the denser woods; arrived April 20. A completed nest, found May 9, was constructed almost entirely of 'Spanish moss,' and contained on the 27th two eggs with half formed embryos.

81. **Cyanocitta cristata florincola.** FLORIDA BLUE JAY.—Extremely tame and everywhere abundant, frequenting the live and water oaks of the city streets, where it appears half domesticated. It possesses greater vocal powers than the northern bird (*C. cristata*); twenty or more different and distinct calls were counted.

82. **Corvus americanus floridanus.** FLORIDA CROW.—I saw less than ten, all some distance from the town in the larger pineries.

83. **Corvus ossifragus.** FISH CROW.—Common only in the vicinity of small ponds and the lake.

84. **Dolichonyx oryzivorus.** BOBOLINK.—January 5, a female having the secondaries missing from one wing was caught by our dogs while Quail shooting. April 26, small flocks were heard passing over, and on the 29th flocks of several hundred males in full song were seen.

The oats were now nearly ready to harvest and considerable damage was done to them by these birds. On my last visit to the oat-fields, May 25, both sexes were as abundant as at any previous time.

85. **Molothrus ater.** COWBIRD.—Not uncommon.

86. **Agelaius phœniceus.** RED-WINGED BLACKBIRD. — Abundant, the

sexes being generally in separate flocks; the males frequenting the pines, the females open fields; but in the vicinity of water both sexes were associated. A nest containing four eggs was found May 6.

87. **Sturnella magna mexicana.** MEXICAN MEADOWLARK.—Abundant. Comparison will not permit me to refer the small, dark Meadowlark, resident in Florida, to *Sturnella magna*, and while they are not fully typical of *S. m. mexicana*, they approach it so closely as to apparently render subspecific separation impossible. Florida birds are perhaps slightly darker above, the neck gorget is somewhat wider, and the yellow of the underparts has more of a sulphur tint than in Mexican specimens, but in measurements, as the appended table shows, there is little, if any, difference in birds from the two regions.

	No. Specimens.	Sex.	Average Wing.	Average Tail.	Average Tarsus.	Average Culmen.
Florida specimens....................	4	♂	4.37	2.92	1.45	1.23
Mexicana.............................	4	♂	4.48	2.89	1.46	1.24
Florida specimens....................	6	♀	4.12	2.81	1.34	1.08
Mexicana.............................	6	♀	4.12	2.81	1.40	1.17

88. **Icterus galbula.** BALTIMORE ORIOLE.—A male was taken December 15, and on February 4 a second was seen and heard calling among the blossoms of the cypress.

89. **Icterus spurius.** ORCHARD ORIOLE.—A rare summer resident.

90. **Scolecophagus carolinus.** RUSTY BLACKBIRD.—A common winter resident. Last seen April 14.

91. **Quiscalus quiscula aglæus.** FLORIDA GRACKLE.—Common only in the city where there were a number of flocks, all very tame.

92. **Quiscalus major.** BOAT-TAILED GRACKLE.—Abundant. On one occasion a number were noticed jumping from the ground at passing insects. A singular note of this species greatly resembles the flapping of wings, as of a Coot tripping over the water; this sound was very familiar to me, but so excellent is the imitation that for a long time I attributed it to one of the numerous Coots which abound in most places favored by *Q. major*.

93. **Carpodacus purpureus.** PURPLE FINCH.—Rather rare during the winter of 1886-87, but not uncommon the following year.

94. **Spinus tristis.** AMERICAN GOLDFINCH.—Common in small flocks up to April 15.

95. **Poocætes gramineus.** VESPER SPARROW.—Very abundant. Last noted April 9.

96. **Ammodramus sandwichensis savanna.** SAVANNA SPARROW.—Even more abundant than the preceding. My last record was May 6.

97. **Ammodramus savannarum passerinus.** GRASSHOPPER SPARROW.—Common.

Mr. Maynard's southern form of the Yellow-winged Sparrow (*Ammodramus australis*), is described as being "similar to the northern Yellow-wing, but smaller, darker, and in all stages of plumage streaked across the breast."* My series of fifteen specimens average, wing, 2.36; tail, 1.81; tarsus, .71. Three of these have streaks on the breast, but none are more heavily marked than a specimen in my collection taken at Englewood, N. J., with which they agree in size, and none are darker than any northern specimens I have seen.

98. **Zonotrichia albicollis.** WHITE-THROATED SPARROW. — Common, as late as April 27.

99. **Spizella socialis.** CHIPPING SPARROW.—Abundant in large flocks at the borders of fields.

100. **Spizella pusilla.** FIELD SPARROW. — A common winter resident, found in the same situations as the last. I saw none after April 16.

101. **Peucæa æstivalis.** PINE-WOODS SPARROW. — Arrived March 31. Common in only one locality, a high, open palmetto pinery, where, May 21, a nest with four fresh eggs was found.

101 *a*. **Peucæa æstivalis bachmanii.** BACHMAN'S SPARROW. — Three were taken during the winter in a 'black-jack' pinery; March 25, one was captured at the edge of a palmetto pinery, and on the 26th one in an open field a mile or more from the nearest pines. These last were probably migrants, as both were found in localities which had before been thoroughly searched.

102. **Melospiza fasciata.** SONG SPARROW. — Common in thickets everywhere. Last noted March 31.

103. **Melospiza georgiana.** SWAMP SPARROW. — Few were found in low or swampy ground, but in certain old fields they were very abundant. Two seen April 27 were the last noted.

104. **Pipilo erythrophthalmus.** TOWHEE. — Abundant up to the date of its departure, April 27.

104 *a*. **Pipilo erythrophthalmus alleni.** WHITE-EYED TOWHEE. 'JOREE. — Common. Not found associated with the preceding, which inhabit thickets in or near hummocks, while *alleni* prefers the dense growths o scrub palmetto in the pineries. The difference in their calls is marked, and the familiar *chewink* of *erythrophthalmus* is easily distinguished from the clear, whistled, *cherwee* of *alleni*, which gives it its local name of 'Joree.'

105. **Cardinalis cardinalis.** CARDINAL. — Abundant. The first song was heard January 17, and on February 1, they were in full song. April 17, a completed nest was found, and May 27, young just from the nest were taken.

106. **Passerina cyanea.** INDIGO BUNTING. — A female, captured January 27, was the only one observed.

107. **Piranga rubra.** SUMMER TANAGER. — Males in full song arrived

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*Maynard, American Exchange and Mart and Household Journal, Vol. III, No. 6, Feb. 5, 1887, p. 69.

April 14, females two days later, and after this date they were common in pairs, not inhabiting pine lands exclusively, but being equally common in dense scrubs.

An adult male, taken April 15, has appearing from the left side of the pygostyle, in addition to the eleven fully formed rectrices, three new and growing feathers, measuring 1.54 inches in length, of a pale tawny color, thus differing from those of either normal male or female.

In a female taken April 20, there is a peculiar blending of the color of both sexes, the red of the male predominating, which gives it a unique rosy appearance.

108. **Progne subis.** PURPLE MARTIN. — A common summer resident, breeding where boxes and gourds are erected for its occupation. Arrived March 3.

109. **Tachycineta bicolor.** TREE SWALLOW.—Abundant up to the date of its departure, May 6.

110. **Ampelis cedrorum.** CEDAR WAXWING.—Common but irregular winter visitant in flocks of ten to twenty. None were observed after April 28.

111. **Lanius ludovicianus.** LOGGERHEAD SHRIKE. 'LOGGERHEAD.' — Common, particularly in the town. Young were seen from April 7 to May 12.

112. **Vireo olivaceus.** RED-EYED VIREO.—A common summer resident. Arrived April 4.

113. **Vireo flavifrons.** YELLOW-THROATED VIREO.—Not uncommon summer resident. Arrived April 6.

114. **Vireo solitarius.** BLUE-HEADED VIREO.—Not uncommon.

114 *a*. **Vireo solitarius alticola.** MOUNTAIN SOLITARY VIREO.—Four of the ten Solitary Vireos taken during the winter and spring of 1886-87, prove to be this race, their identity being determined by Mr. Brewster, to whom they were submitted for examination. Eight additional specimens secured the following year are true *solitarius*.

115. **Vireo noveboracensis.** WHITE-EYED VIREO.—Probably a common winter resident, although few were seen until January 31, when they announced their presence from the depths of dense thickets where, silent, they would have been passed unnoticed.

116. **Mniotilta varia.** BLACK-AND-WHITE WARBLER.— A rare winter resident, becoming common March 15, and was last noted April 20.

117. **Protonotaria citrea.** PROTHONOTARY WARBLER. — Two males, taken April 5, were the only ones observed.

118. **Helmitherus vermivorus.** WORM-EATING WARBLER.— A single male was taken April 11, and a female December 26, 1887.

119. **Helminthophila celata.** ORANGE-CROWNED WARBLER. — A not uncommon winter resident. None were observed after April 11.

120. **Compsothlypis americana.** PARULA WARBLER.— Commenced to arrive February 22, was abundant on the 25th, and common at the date of my departure.

121. **Dendroica tigrina.** CAPE MAY WARBLER. — A male was taken April 14.

122. **Dendroica cærulescens.** BLACK-THROATED BLUE WARBLER.— April 5, two males, April 20 and 26, a male each day, May 6, two females, were the entire number observed.

123. **Dendroica coronata.** MYRTLE WARBLER.—The most abundant bird of any species, and very generally distributed. Fully nine tenths of their numbers departed after a severe northeast storm on April 8 and 9.

124. **Dendroica striata.** BLACKPOLL WARBLER. —April 23 and 26, a male each day, May 9, two males and a female, constitute the entire record.

125. **Dendroica dominica.** YELLOW-THROATED WARBLER.— Rather rare winter resident. March 2, migrants in full song began to arrive, and on the 4th of that month they were abundant in the cypresses and common in the pines near water. After this there was little or no change in their numbers or distribution. A partly formed egg was found in the oviduct of a female taken April 14. Several birds in my series of thirty-two are *albilora* so far as measurements are concerned, but none are without at least a trace of yellow over the eye.

126. **Dendroica vigorsii.** PINE WARBLER.—An abundant resident of the pineries, in full song February 1, and frequently heard before that date. Young, about two days from the nest, were taken April 18.

127. **Dendroica palmarum.** PALM WARBLER.— Abundant and very generally distributed; numbers appearing in the streets and gardens of the town, reminding one of Chipping Sparrows as they hopped around our doors and piazzas. They commenced to moult about March 15, and had not acquired their new plumage at the time of their departure, April 29, up to which date they were common.

127 *a*. **Dendroica palmarum hypochrysea.** YELLOW PALM WARBLER.— Occasionally found associated with the last, in all about fifteen individuals being noticed.

128. **Dendroica discolor.** PRAIRIE WARBLER. — Arrived March 31, became common April 5, and remained common until May 5, after which date none were observed.

129. **Seiurus aurocapillus.** OVENBIRD.—A not uncommon inhabitant of the hummocks.

130. **Seiurus motacilla.** LOUISIANA WATER-THRUSH.—Arrived March 8. Very few were seen.

131. **Geothlypis trichas.** MARYLAND YELLOWTHROAT.— Common.

132. **Sylvania mitrata.** HOODED WARBLER.—April 2 and 11, a male observed each day.

133. **Setophaga ruticilla.** AMERICAN REDSTART.—April 7 to May 9, six males, and on the last date three females, were the entire number seen.

134. **Anthus pensilvanicus.** AMERICAN PIPIT.—Abundant in flocks of twenty to fifty, frequenting the shores of the lake, hummock clearings, and freshly plowed ground.

135. **Mimus polyglottos.** MOCKINGBIRD.—Abundant everywhere. The birds of the town commenced to sing January 26, and were in full song February 3, while those of the surrounding country were not in full song

until March 7. The same difference was noticed in the times of breeding, my first notes on the subject being April 20, when almost fully grown young were seen in the city and a nest containing one egg was found a few miles out in the country.

136. **Galeoscoptes carolinensis.** CATBIRD. — Common, but silent and retiring. None were observed after May 10.

137. **Harporhyncus rufus.** BROWN THRASHER. 'THRASHER.'— A common resident. The first song was heard February 8.

138. **Thryothorus ludovicianus.** CAROLINA WREN. — Abundant. A single specimen (No. 1111, ♀, Dec. 13, 1887) in my series of eleven birds has faint wavy marks upon the flanks, thus approaching the *berlandieri* form.

139. **Troglodytes aëdon.** HOUSE WREN.—Abundant, both in the town and surrounding country, wherever there is sufficient growth to afford it concealment. Singing was commenced March 20, and none were observed after April 15.

140. **Sitta carolinensis.** WHITE-BREASTED NUTHATCH. — A not uncommon resident of the pineries.

141. **Sitta pusilla.** BROWN-HEADED NUTHATCH. — Common in small troops in the pines. One of three fully grown young, taken May 5, exhibits rather peculiar albinistic markings, the bill, head, and tertiaries being whitish, the toe nails flesh color.

142. **Parus bicolor.** TUFTED TITMOUSE.—Abundant. Young attended by the parents were taken May 27.

143. **Parus carolinensis.** CAROLINA CHICKADEE. — On two occasions single birds of this species were seen with flocks of *Sitta pusilla* in the pines, but with these exceptions it was a bird of low swamps and scrubs, frequently associating with the preceding. A partly formed egg was found in the oviduct of a female taken March 15.

144. **Regulus calendula.** RUBY-CROWNED KINGLET. — Abundant. In full song from March 15 to the date of its departure, April 16.

145. **Polioptila cærulea** BLUE-GRAY GNATCATCHER. — A rare winter resident, becoming common March 8. The first song was heard February 28.

146. **Turdus aliciæ.** GRAY-CHEEKED THRUSH. — A male was taken April 26.

147. **Turdus aonalaschkæ pallasii.** HERMIT THRUSH. — Abundant in the hummocks and common in the pineries. Several were heard singing January 8, and from March 10 to 26, they sang occasionally. Few were noted after the last named date until the time of their final departure, April 15.

148. **Merula migratoria.** AMERICAN ROBIN.—Abundant in large flocks, and in full song until December 31, no songs being heard later. The greater portion of their number had departed March 15, but several birds were seen in April, on the 11th, 21st and 27th, one observed each day.

149. **Sialia sialis.** BLUEBIRD.—Resident birds inhabit the pineries, while the large flocks of wanderers were probably winter visitants. Young just from the nest were taken April 20.

GREAT AUK NOTES.

BY FREDERIC A. LUCAS.

ORNITHOLOGISTS owe a debt of gratitude to Professor Newton and Mr. Grieve for their contributions to the history of the Great Auk, and for their labors in collecting and rendering accessible to English and American readers the substance of many scattered papers by foreign writers. Well as their work has been done a few errors, here and there, have crept in, and in correcting them, as they come up in connection with some of the points herein discussed, the writer trusts that he may not seem ungracious, for few have probably studied the writings of the above-named gentlemen with more pleasure and profit than himself.

To Professor Newton belongs the credit of calling attention to the fact that the range of the Great Auk was much more restricted than was generally supposed, and that the bird never even visited many of the localities in which it was once thought to have bred.

It is my own belief that, in historic times at least, the number of places resorted to by the Great Auk for breeding purposes was comparatively small, partly from the inability of the bird to fly, but more from one of those unknown reasons which impel some animals to select for their homes only one or two out of many possible sites.

We have a striking example of this in the Gannet, a bird whose powers of flight are exceptionally great, and whose considerable size and voracious appetite demand an abundant supply of fish. It might therefore be supposed that this bird would be found breeding at many places from Maine to Labrador, and yet, so far as I am aware, it is found at only two spots in all this range of coast, and to one of these we know certainly that it has resorted for three hundred and fifty years* in spite of almost ceaseless persecution.

If then such is the case with a bird gifted with unusual powers of locomotion how much more likely it is to have been the habit of a bird so hampered by nature as the Great Auk. It is also worthy of note that traditions concerning the Great Auk refer to a small number of localities only, and moreover had the bird availed itself of the many possible breeding places along the coasts of Newfoundland and Labrador it might have endured in lessened numbers until this day.

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*In 'The Auk' for April, by an unfortunate slip of the pen, I wrote three hundred and thirty-two instead of three hundred and fifty-three.

There is a rumor that twenty years ago the Great Auk was still to be found on the Penguin Islands, in the mouth of Gros Water Bay, sixteen miles from Grady Harbor, a locality about two hundred and fifty miles north of Cape Norman, N. F.* Of course this is possible, but it seems hardly probable.

It was on the program, during the cruise of the Fish Commission schooner 'Grampus,' in the summer of 1887 (a cruise in which it was my good fortune to take part), to visit as many of the probable former breeding grounds of the Great Auk as circumstances would admit of, notably Penguin Island near Cape la Hune (southern coast of Newfoundland), and Penguin Islands near Cape Freels (eastern coast). Unfortunately Æolus decided against a visit to the former locality — so often mentioned by the early navigators — and let loose upon us a brisk southwester, before which the 'Grampus' drove by under shortened canvas at the rate of ten knots an hour, while, with a visit to Funk Island still in prospect, it was deemed inadvisable to lose any time by waiting for wind and sea to go down.

On the eastern coast we were favored with better weather, and leaving the well-named harbor of Seldom Come By early in the morning, with a 'Newfoundland Pilot' (a lookout at the masthead) to guard against the possible contingency of a rock not laid down on the chart, passed Peckford Reef, the Schoolmarm, and Scrub Rocks, and came to anchor about noon off the Penguin Islands, two flat, grassy islets rising but twenty feet above the water and not at all suggestive of an Alcine breeding place. Still one of these *may* be that certain flat island whence men "drave the Penguins on a board into their boats by hundreds at a time," in spite of the fact that the islets are but three miles from shore, and in consequence the Great Auk must have led a very precarious existence.

Offer Wadham, nine miles farther out to sea, is much more likely to have been the spot alluded to by Captain Richard Whitbourne, although all attempts to definitely locate it must necessarily be pure guess work.

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*For this report I am indebted to Mr. William Sclater of St. Johns, N. F.

Certainly if the Garefowl dwelt here, he left no trace of former residence, for not a bone nor a speck of eggshell came to light in making a dozen excavations to the bed rock.

This is in marked contrast to the state of affairs at Funk Island, where bones can readily be found, and where the soil itself, thickly sprinkled with crumbled eggshells, bears mute testimony to long years of occupancy by the Great Auk.

The soil of Funk Island, by the way, is frozen for only a part of the year, and the statement that a mummy of the Greak Auk was taken "from under ice which never melts" was doubtless made from a misapprehension of the facts in the case, for although floe ice is driven upon some portions of the island it never reaches those places where the Auk remains lie buried, and never endures into the summer months.

Today Penguin Islands are overun by a colony of field mice (*Arvicola riparia*), whose burrows exist in almost incredible numbers, while their well worn connecting paths cover the ground in places with a veritable net work. Sundry boluses of matted fur and bones bore witness to the occasional disturbance of this populous mousery by the visits of Owls.

A little investigation showed that many burrows, having been deserted by their original occupants, the mice, had been taken possession of by Leach's Petrels, and the occurrence of perfectly fresh eggs on the 24th of July, coupled with the fact that well advanced embryos were found at the Bird Rocks on July 9, suggests that possibly this little bird raises two broods in a season.

A few Puffins were also found on the island, but none of the many busy little excavators seemed to have met with better success than ourselves in finding bones, for none lay scattered about the entrance to their burrows (as was the case at Funk Island), and if indications may be relied on the former occurrence of the Great Auk on these Penguin Islands in any considerable numbers must be looked upon as somewhat doubtful.

Another doubtful habitat is found in the Bird Rocks of the Gulf of St. Lawrence, for although the Auks may have strayed thither from the colony at Penguin Island, off Cape la Hune, they would have found the area available for breeding purposes limited to a narrow strip on the northeastern point of the North Rock, and a still more restricted portion on its southern side, these being the only spots accessible to a flightless bird like the Garefowl.

True, in Hakluyt's 'Voyages' Cartier speaks of the Great Apponatz in connection with the Iles des Margaulx, as he called these rocky islets, but may this not be a mistranslation of *grasse* Apponatz, or a correct translation of a misprint? Never having seen the original French, I make this suggestion with some hesitation, and it must stand for what it is worth, still it derives a little support from the circumstance that where these problematical birds are first mentioned they are spoken of as being "exceeding fat" (Il y sont excessivement gras").

Mr. Grieve suggests in a recent letter that in former times the space at the base of the little rock was much more extended than at present, since Cartier's crew "killed above a thousand of those Godetz and Apponatz" on "the lowest part of the least island," and "in less than one hour might have filled thirty such boats of them."

This supposition may very well be correct, yet careful observation of the little rock and the depth of water immediately about it leads me to think that the changes it may have undergone have been the result of the fall of fragments from the overhanging sides rather than the wearing away of its base.

Charles Leigh, who visited the Bird Rocks in 1538, does not mention the 'Penguin,' although he landed on the little rock after a skirmish with a herd of Walruses who valiantly attacked the boat and at first put the invaders to flight.

If the Godetz and Apponatz were Murres and Razorbills it would not have required a very great expanse of cliff to have furnished foothold for a thousand or two of them, and even now, after long years of persecution, it is quite possible to approach these birds, when sitting on their eggs, sufficiently near to knock them down with a stick.

That the Iles des Margaulx of Cartier are the Bird Rocks of today can scarcely be questioned, although no locality whatever can be found by following the courses and distances given as having been sailed on the 24th and 25th of June, 1534.

But by following Cartier from Buona Vista northward, through the Strait of Belle Isle, and thence southward, we learn from the latitudes now and then given that on June 25 he must have been somewhere in the vicinity of the Bird Rocks.

Fortunately, too, there is a reference to the Island of Brion, giving its direction and distance from the Iles des Margaulx, which is alone sufficient to identify the spot, as they harmonize with existing facts. Brion Island, like Blanc Sablon and Chateau Bay, has retained its name unchanged while so many others have either been renamed or have had their original appellation so anglicized as to be quite unrecognizable.

Final confirmation of the locality is found in the Gannets (Margaulx) themselves, whose descendants with true conservative spirit still cling to their historic stronghold, and although they no longer exist in such numbers that the rocks "though red seem white," they still bite as savagely as in the days of yore.

Two more supposed breeding places of the Great Auk may be considered here, Cape Cod and the Virgin Rocks. Of the latter it will suffice to say that they lie three and one half fathoms under water, while many evident reasons, such as the low, sandy character of Cape Cod and the adjacent islands, the proximity of Indians, and the general northern range of the Alcidæ on the Atlantic coast, render the former locality more than doubtful.

As for the bones found in shell heaps, they are probably those of birds taken during their migrations southward, for the Great Auk was doubtless formerly as common on the New England coast during the autumn and winter months as the Razorbill is now.

A word regarding the food of the Great Auk, and in support of the statement made by Fabricius that the lump-fish (*Cyclopterus lumpus*) formed an important item in its bill of fare. While the lump-fish is rather rough to look upon, the bones are extremely brittle, and the strong beak of the Garefowl would slice through the body of any specimen it might have captured, as easily as the knife of the Eskimo does through the body of the lump-fish he dries or freezes for his winter store. The young lump-fish—and these would be most dainty morsels—keep near the surface of the water and seek concealment in patches of floating rock-weed where they would easily have been detected by the keen eye of a sea fowl, while being but indifferent swimmers there would be no safety in flight.

This calls to mind the somewhat singular remark of Mr. Reeks that the Great Auk could not have been a powerful swimmer, owing to the small size of its feet, forgetting that, like the Penguins and the Alcidæ, the Garefowl depended for swimming chiefly upon the wings, and if the bird could not fly over the water it certainly could beneath.

I cannot close this paper without referring to the published figures of the Great Auk, for this bird has suffered grievously at the hands of nearly every artist (Audubon is an exception) who has been called upon to portray it.

It is true that the artists may plead extenuating circumstances in the shape of the stuffed—it were flattery to say mounted—specimens that have served as models, most of which are from two to eight inches longer than they should be. I trust that Mr. Hancock will pardon me for including his figure in this criticism, for his bird is too long, too slender, and with too pronounced a crop.

Artists have evidently recognized the fact that the stuffed Auks are too slender, and endeavored to make amends for the shortcomings of the taxidermist, for obesity is the general trouble with figures of the Great Auk, although the neck is usually as much too thin as the body is too stout. Could the bird have seen himself portrayed as he is even on the cover of his namesake, he might, like Wolfe, have exclaimed, "now I die content."

The question might naturally be asked what right has one who never saw the Great Auk alive to criticise him dead, and the answer is this, having just compared three mounted skeletons with one of the Razorbill the conclusion is unavoidable that the two species resembled one another very closely in outward contour.

As for internal structure, I must plead guilty to a belief that the two species should be included in the genus *Alca*, and with this bit of cis-Atlantic heresy bring these notes to a close.

DESCRIPTIONS OF TWO NEW SUBSPECIES OF THE SEASIDE SPARROW (*AMMODRAMUS MARITIMUS*).

BY J. A. ALLEN.

MR. W. E. D. SCOTT, of Tarpon Springs, Florida, sent to me recently for examination an interesting series of Seaside and Sharp-tailed Sparrows, taken at Tarpon Springs, Feb. 28, 1888. The Sharp-tailed Sparrows, six in number, differ very appreciably from New Jersey and Long Island specimens, being smaller, and having the streaks on the breast heavier and more sharply defined, but they are perhaps hardly different enough from the northern birds to require recognition by name.

The two Seaside Sparrows are intermediate between *Ammodramus maritimus* and *A. nigrescens*, but approach the latter more nearly than the former. They suggest that material from other points may eventually bridge the gap between these two forms, and that *A. nigrescens* will prove to be merely a subspecies of *A. maritimus*, as it was originally described by Mr. Ridgway. For the present the Tarpon Springs birds may be recognized as

Ammodramus maritimus peninsulæ, subsp. nov. SCOTT'S SEASIDE SPARROW.

SUBSP. CHAR. — *Adult* ♀ (Tarpon Springs, Fla., Feb. 28, 1888; W. E. D. Scott): — Similar to *A. nigrescens* in size and proportions, and in the size and form of the bill. Above the feathers are centrally dull brownish, edged broadly with olive and gray. Below with narrow black streaks on the breast and flanks, much narrower and less sharply defined than in *A. nigrescens*, but much stronger and much more sharply defined than in *A. maritimus* in any phase of plumage. Throat and abdominal region white; rest of underparts suffused with brownish ash, streaked with blackish. Wing, 2.20; tail, 2.00; tarsus, .83; culmen, from base .52.

Types, No. 31,209 and 31,210, females, Am. Mus. Nat. Hist., New York City, [and No. 2600, ♂, Coll. A. K. Fisher].

HABITAT.—Southwestern Florida (Tarpon Springs and Cedar Keys), [and Louisiana (Grand Isle)].

Through the kindness of Mr. William Brewster I have been able to compare the birds from Tarpon Springs with his large series of *A. nigrescens* from Indian River. I find also in Mr. George B. Sennett's collection a specimen collected many years since at Cedar Keys in November which is practically identical with the Tarpon birds.

Some April examples of *A. nigrescens* approach var. *peninsulæ* in having the black of the upper parts, particularly of the head, hind-neck, and fore-back, edged with olive and gray; but beneath the broad black streaks contrast strongly with the narrower and less sharply outlined streaks of *peninsulæ*.

In *A. maritimus*, in breeding dress, the breast and sides are ashy with obscure plumbeous centres, rarely showing a tendency to well-defined streaks. In autumn, however, the dark centres take more the form of streaks. From *maritimus*, in all stages of plumage, *peninsulæ* differs by its much smaller size, much darker upper parts, decided streaks below, darker flanks, and whiter throat and abdomen.

I am indebted to Mr. Scott for generously placing this interesting material in my hands for description.

Since the above was put in type I have received from my friend, Dr. A. K. Fisher, of Washington, D. C., sixteen specimens of Seaside Sparrows collected by him at Grand Isle, Louisiana, June 6-9, 1886. Ten of them are adults in rather worn plumage and six are in first plumage. These specimens prove of great interest, considered in connection with still other material now to be mentioned.

Three of the Louisiana specimens (No. 2600, 2622, and 2624, Coll. Dr. A. K. Fisher) are practically identical, considering the difference in season, with the birds from Tarpon Springs and Cedar Keys. In the others the plumage is more worn (in some of them exceedingly abraded), and the streaks below are either much less distinct or quite wanting. All agree in small size and dark colors, in this respect differing strikingly from true *maritimus*, and agreeing with the Florida birds. The Louisiana birds in first plumage differ rather more from northern birds in corresponding plumage than do the adults. (See the comparative descriptions of the young given below.) The average difference in size is about one fourth of an inch in the length of the wing, the wing in northern birds averaging about 2.50 and in the southern about 2.25.

In this connection it seemed of interest to compare with the Louisiana and Florida birds a small series in Mr. George B. Sennett's collection, taken by him in the breeding season at Corpus Christi, Texas, May 25, 1882. Mr. Sennett has, on different occasions, called my attention to the differences between these birds and true *maritimus*, but the material representing this group of birds then available was much less than at present, and with his characteristic conservatism in such matters he deferred describing the Texas birds till their status could be better determined. He now kindly permits me to make use of this material, consisting of three specimens in breeding plumage and one in first plumage. The Texas form being evidently entitled to recognition, it gives me pleasure to name it in honor of one who is doing so much to extend our knowledge of Texan ornithology.

Ammodramus maritimus sennetti, subsp. nov. TEXAN SEASIDE SPARROW.

SUBSP. CHAR. *Male and female adult* (Corpus Christi, Texas; Coll. G. B. Sennett):—Size of *Ammodramus maritimus nigrescens* and *A. m. peninsulæ*. Above similar to *A. maritimus*, but all the colors are lighter and paler; nape distinctly streaked with black,—a feature absent in *maritimus* and only occasionally indicated in *peninsulæ*. Below the prevailing shade of gray is much lighter than in *maritimus*, with distinct, narrow, blackish streaks on the breast and flanks, those on the breast bordered with white or ochraceous white; white of throat and abdomen also purer than in *maritimus*.

Types, No. 3304, ♂, and No. 3303, ♀, Coll. G. B. Sennett.

HABITAT.—Gulf coast of Texas (Corpus Christi).

I have before me the young in first plumage of *A. maritimus*, *A. m. peninsulæ*, and *A. m. sennetti*, in which the differences are even more strongly pronounced than in the adults, as shown in the following comparative descriptions.

A. maritimus. *Juv. in first plumage*:—Prevailing color above olive brown streaked with black, narrowly on head, nape, lower back, and rump, broadly on interscapulars. Below, throat and abdomen soiled white; sides, of neck, jugulum and flanks pale buffy, narrowly streaked with black. (Five specimens, Long Island, N. Y.)

A. m. peninsulæ. *Juv. in first plumage*:—Prevailing color above black, the feathers narrowly edged with ochraceous. Below, throat and middle of abdomen white; sides of neck, jugulum, and flanks bright ochraceous, narrowly streaked with black. (Six specimens, Grand Isle, La.)

A. m. sennetti. *Juv. in first plumage:*—Prevailing color above gray-brown, streaked with black, broadly so on the interscapulum. Below pale fulvous white, strongest on sides of neck, jugulum, and flanks, where also sparsely streaked with black. (One specimen, No. 4956, Coll. G. B. Sennett—Corpus Christi, Texas, June 14, 1887.)

The name *peninsulæ* was given to Scott's Seaside Sparrow before the Louisiana material came to hand. The name is thus not happily chosen, as the form is doubtless locally common along not only the Gulf coast of Florida, but westward at least to Western Louisiana.

DESCRIPTION OF A NEW SPECIES OF THE GENUS *TITYRA*, FROM ECUADOR.

BY J. A. ALLEN.

A small collection of birds, collected mainly in the vicinity of Quito, Ecuador, was recently purchased of Mr. Ludovic Söderström by the American Museum of Natural History. It contains a number of rare species, and others of special interest for the locality of their capture; an annotated list of the collection will be given later in another connection. It contained four specimens of *Tityra*, two of which are referable to *T. personata;* one of these has much more than the usual amount of white in the tail—thus approaching *T. semifasciata*—and the other very much less than the normal amount. One of the other specimens I refer with hesitation to *T. albitorques*, from which it differs in the small amount of white at the base of the tail, there being little more than is seen in *T. inquisitrix.* This specimen thus has the head-markings of *T. albitorques* and nearly the tail of *T. inquisitrix.* The fourth specimen is so different from any of the described species of this genus that I venture to characterize it as new.

Tityra nigriceps, sp. nov.

Sp. Char. *Adult* ♂:—Similar to *T. personata*, but with the whole head and throat black, and the white at the base of the tail restricted to the extreme base of the feathers, which are merely white centrally for about an inch, both vanes being widely bordered with black externally. The whole plumage, both above and below, excepting of course the black of wings and tail, is much lighter—almost pure white—than in examples of *T. personata* from other localities. Size of *T. personata*.

Type, No. 30,489, Am. Mus. Nat. Hist., New York City.

HABITAT. Headwaters of the Napo, Ecuador.

In *T. personata*, the only species with which this need be compared, the black of the head is restricted to the chin, the malar region, the anterior half of the ear-coverts, and a broad band behind and above the eyes, joining the black of the front of the head, which extends from the base of the bill to a line about opposite to the middle of the orbits. In *T. nigriceps* the black covers the whole throat and head, extending to the nape, and including the whole of the auricular region. The nape is also black, with the feathers in part edged with white. The black of the head is thus quite as extended as in *T. cayana*, with the addition of a *wholly black throat*.

The material examined in this connection numbers 112 specimens, representing, in good series, all the known species of the genus. In this connection I desire to acknowledge my indebtedness to the kind offices of Mr. Robert Ridgway in sending me for examination the specimens of *Tityra* contained in the U. S. National Museum.

THE JACANIDÆ.

BY D. G. ELLIOT, F. R. S. E.

MY material for this review has been obtained from the following sources. The Jacanidæ in the general collection of the American Museum of Natural History, New York, specimens from the Lawrence collection and those of Messrs. Smith and Rusby, also in the Museum. From Boston I have received specimens from the Boston Society of Natural History, and Mr. C. B. Cory; and also all the specimens in the National Museum at Washington, amounting altogether to about one hundred examples, quite sufficient to enable satisfactory conclusions to be reached. I would express my thanks to Messrs. Henshaw and Cory and Professors Goode and Ridgway, for the assistance given.

The following are the chief points in the literature of the family:

1758. LINNÆUS, *Systema Naturæ.* In the genus *Fulica*, comprising species of various genera, the Jacana from Carthagena, without pendent wattles, and tri-lobed frontal wattles, is named *Fulica spinosa*. . . . . Species 1.

1766. LINNÆUS, *Systema Naturæ, 12th ed.* In the genus *Parra* two Jacanas are described, the bird from Brazil as *P. jacana*, and *P. variabilis* (= *P. spinosa*). . . . Species 2.

1786. SCOPOLI, *Deliciæ Floræ et Faunæ Insubricæ.* Under the genus *Tringa* a Jacana is described as *T. chirurgus*. Species 3.

1788. GMELIN, *Systema Naturæ.* Eight species of Jacana are here given under *Parra*, two for the first time, viz., *P. nigra* and *P. africana*. The others are *P. jacana* Linn., *P. brasiliensis* and *P. viridis* (= *P. nigra*), *P. variabilis* (= *P. spinosa* Linn.), *P. luzoniensis*, and *P. sinensis* (= *T. chirurgus* Scop.) . . . . Species 5.

1790. LATHAM, *Index Ornithologicus.* The list of *Parra* here given is but a repetition of that of Gmelin, except that one species, *P. indica*, is described for the first time. . Species 6.

1817. VIEILLOT, *Nouveau Dictionnaire d' Histoire Naturelle.* The list of *Parra* of this author is the same as those of Gmelin and Latham, save that he renames the *P. indica*, *P. cristata*.

1820-1839. TEMMINCK, *Planche Coloriées.* One new species is here described as *P. gallinaceus*. . . . . . Species 7.

1832. GEOFF. ST. HILAIRE, *in Magazin de Zoologie. Parra albinucha* is first described. . . . . Species 8.

1832. LESSON, *Traité Ornithologie.* *J. spinosa* is renamed *P. cordifera*.

1832. WAGLER, *Isis.* In this publication *J. spinosa* is renamed *P. gymnostoma*, and three genera are proposed for these birds: *Hydrophasianus* for *P. chirurgus* Scop.; *Metopidius*, containing *P. africana* and *P. œnea* (= *P. indica* Lath.). (As the first named has the front and top of head bare and no wattle, it cannot be classed in the same genus with *P. indica* which has a feathered head, and a broad, upright, frontal wattle); and *Hydralector*, for *P. gallinaceus* Temm.

1844-1849. G. R. GRAY, *Genera of Birds.* In this work we have the Jacanas placed in the subfamily Parrinæ of the family Palamedeidæ, order Grallæ. Fourteen species are enumerated under *Parra*, of which four are marked doubtful, and one is given for the first time, *P. hypomelæna* (= *P. nigra* Gmel.). One of the species is marked with a ? —The species given besides these are *P. jacana* Linn., *P. viridis* and *P. brasiliensis* Gmel. (= *P. nigra* Gmel.), *P. gymnostoma* Wagl. and *P. cordifera* Less. (both = *P. spinosa* Linn.), *P. africana* Gmel., *P. capensis* Smith, *P. albinucha* St. Hil., *P. indica* Lath., *P. cristata* Vieill.) = *P. indica* Lath.), *P. gallinacea* Temm., and *P. chilensis* Molina, which belongs to the genus *Vanellus* auct.

1849. SIR A. SMITH, *Illustrations of the Zoology of South Africa. Aves. P. capensis* first described. . . Species 9.

1856. P. L. SCLATER, in *Proceedings of the Zoological Society of London.* A review of the American species of this family is here given. Five are enumerated—*P. jacana* Linn., *P. intermedia* Bonap. (= *P. jacana* Linn.), *P. melanopygia* Sclat. and *P. hypomelæna* Gray (both = *P. nigra* Gmel.), and *P. gymnostoma* Wagl. (= *F. spinosa* Linn.).

1878. RAMSAY, *Transactions Linnean Society of New South Wales. Hydralector gallinaceus*, described as *Parra novæguineæ.*

1881. C. B. CORY, in *Bulletin Nuttall Ornithological Club. J. spinosa* from Haiti described as *P. violacea.*

CLASSIFICATION.

Formerly the Jacanidæ were usually associated with the Rallidæ, but through the researches of competent comparative avian anatomists, notably the late Messrs. Garrod and Forbes, it has been pretty conclusively shown that the Jacanas are much more nearly related to the Plovers. Nitzsch in his 'Pterylography,' associates the *Jacanæ* with the genera *Rallus*, *Crex*, and *Porphyrio*, although they differ from all of these in having ten rectrices instead of twelve; while the bands of the dorsal tract behind the shoulder blades are narrowed remarkably, and the pelvic portion is dilated. The lumbar tracts are weak and united by sparse contour feathers to the uropygial portion of the dorsal tract. The skulls of the Jacanidæ are schizorhinal, with well-developed basipterygoid processes; the vomer is apically emarginate; no trace of occipital fontanelles, and the supraorbital impressions are absent. The pelvis exhibits its Limicoline affinities by having the ilia wider, and more expanded anteriorly, by having hardly any median projection on the postacetabular ridge, and by being widest dorsally behind the antitrochanters. Between the ischia and sacrum the bony plates are narrower, and the posterior part of the renal fossæ more open. In certain species which have the metacarpal spur less developed and blunt, the radius for its distal half is dilated and flattened into a lamellar-like expansion. About half of this radius is bare of muscle, and the margin slightly roughened, and doubtless the bird is capable of striking a severe blow with this scimitar-shaped bone. In the species where the 'spur' is long and sharp, the radius is of the usual form. Viewed anatomically, the Jacanas possess no crop, but a muscular gizzard, the epithelium lining of which is hard and thick. The gall bladder is well developed; and the cœca are very small, their length to that of the intestines being 2 (*J. jacana*) and 15 in. (*H. chirurgus*) to 12 inches. It will thus be seen that in many particulars the Jacanidæ differ from the Rallidæ, and approach the Limicolæ; but they possess sufficient characteristics peculiar to themselves to constitute a distinct Family, with the Charadriidæ as its nearest relatives.

The Jacanas are characterized by narrow, rather long, pointed bills; the nostril oblong, lateral, open, placed about midway in the maxilla. Moderately long necks. Body small. Wings armed with a metacarpal spur, in some species well-developed and sharp, in others blunt, or rudimentary. Head usually adorned with a wattle of various shapes. Legs long and slender, toes enormously lengthened with extremely long claws, that on the hallux being often three times greater in length than the toe. With these large feet, their passage over floating plants and weeds is made expeditious and easy.

Genera.

Fortunately but few generic terms have been applied to these birds, but the one not entitled to priority has been used by nearly all ornithological writers from the time of Linnæus to the present day.* Brisson first instituted a genus '*Jacana*' for the Jacanas and gave very good descriptions of those he considered especially distinct. Six years after, Linnæus, in his 12th edition, utterly ignored Brisson's genus, as in fact he did his own previous writings, and bestowed the generic term *Parra* upon these birds, and this is the name that has, quite erroneously, been employed ever since. It must, however, give way to that of Brisson. The Jacanidæ are properly divided into five genera, characterised chiefly by the presence or absence of wattles, their shape, and the bare or feathered head.

List of Genera.

1760. *Jacana* BRISSON, Ornith. Vol. V, p. 121. Type, *Fulica spinosa* Linn.

1766. *Parra* LINNÆUS, Syst. Nat. Vol. I, p. 259 (*passim*). Type, *Parra jacana* Linn.

1832. *Hydrophasianus* WAGLER, Isis, p. 279. Type, *Tringa chirurgus* Scop.

1832. *Metopidius* WAGLER, Isis, p. 279. Type, *Parra africana* Gmel.

1832. *Hydralector* WAGLER, Isis, p. 279. Type, *Parra gallinaceus* Temm.

1842. *Diplopteryx* GLOGER, Handb. u. Hilfschb. Naturg. Type, *Tringa chirurgus* Scop.

1888. *Aphalus* ELLIOT, gen. nov. Type, *Parra capensis* Smith.

Key to the Genera and Species.

A. Tail short; primaries normal.
  a. Head with an upright fleshy wattle on forehead..........JACANA.
    a'. Narrow pendent wattles at base of mandible.
        Frontal wattle bi-lobed.
      a''. Back and wings chestnut........................*J. jacana.*
      b''. Back and wings black, glossed with purple........*J. nigra.*
    b'. Without pendent wattles.
      a''. Frontal wattle tri-lobed. Back and wings
          purplish chestnut..........................*J. spinosa.*
      b''. Frontal wattle rounded. Back and wings
          pale greenish bronze.......... ....*J. indica.*
  b. No wattles.
    a'. Forehead bare...................................METOPIDIUS.

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* Stejneger; Auk, II, 1885, p. 338.

a''. Back of neck white, sides and front of neck black. . . . . *M. albinucha*.

b''. Back of neck black, sides and front of neck white. . . . . *M. africanus*.

c'. Forehead feathered. . . . . APHALUS.

a''. Forehead yellow; crown and nape, reddish orange. . . . . *A. capensis*.

d'. Head with fleshy shield and narrow upright fleshy membrane over culmen to nostrils. HYDRALECTOR.

a''. Nape and back of neck black; sides of face golden yellow. . . . . *H. gallinaceus*.

B. Central tail-feathers very long; primaries attenuated. . . . . HYDROPHASIANUS.

a. Head, face, and fore neck, white; nape and stripe on sides of neck, black; hind neck, golden yellow. . . . . *H. chirurgus*.

GEOGRAPHICAL DISTRIBUTION.

The Jacanas are pretty well distributed throughout the globe, and are represented in all its various zoögeographical divisions. Commencing in the far East we find in the Australian Region that the continent of Australia possesses but one species, the *M. gallinaceus*, procured in South Australia, at Port Essington, in Queensland, and the north-eastern portion of New South Wales. This species extends its range into New Guinea and Mysol of the Papuan group of the Austro-Malayan Subregion, and is also found in the Austro-Malayan islands Celebes and Banda, though perhaps the latter may be doubtful. The Oriental Region contains two species, *H. chirurgus* and *M. indicus*, the range of which is very similar, extending through India, as understood, from Cashmere, through Cochin-China and Siam of the Indo-Chinese Subregion, into the Indo-Malay islands of Sumatra, Java and Borneo, and *H. chirurgus* is also found in the Philippines. Ceylon also contains both species, and Formosa of the Oriental Region possesses *H. chirurgus*. The Ethiopian Region contains three species, *M. africanus*, *M. albinucha*, and *A. capensis*. The first extends from Natal on the southeast coast, through the lake regions to Zanzibar on the north, and across the southern portion of the continent through Damara-Land to Senegal on the south-west coast. *A. capensis* is found from Algoa Bay, across the southern portion of Africa, into Damara-Land. Madagascar (Malayan Subregion) contains *M. africanus* and *M. albinucha*.

The Palæarctic Region possesses but one species, *H. chirurgus*, which is met with in the Chinese Empire, where, according to M. David, it passes the summer in the middle provinces. The Nearctic Region has but one species, *J. spinosa*, met with in various parts of the West Indian Islands, and extending southwards through Central America into Colombia of the Neotropical Region. This last region also contains *J. nigra*, which ranges through Central America and Colombia, and *J. jacana*, which is distributed generally over a large portion of South America, being abundant in Trinidad, Venezuela, Brazil, the Argentine Republic, Peru, and Bolivia.

Jacana jacana.

Parra jacana LINN. Syst. Nat. 1766, I, p. 259.—BUFF. Pl. Enl. 322.—GMEL. Syst. Nat. 1788, I, p. 707.—VIEILL. Ency. Méth. 1823, III, p. 1053, pl. 60, fig. 1.—SHAW, Gen. Zool. 1824, desc. and syn. *partim*, *nec.* pl.—LATH. Ind. Orn. 1790, II, p. 762.—SCLAT. P. Z. S. 1856, p. 282, *partim*.—TAYL. Ibis, 1864, p. 96.—LÉOT. Ois. Trinid. 1866, p. 486.—NITZSCH, Pteryl. 1867, p. 126.—PELZ. Ornith. Bras. 1870, p. 313.—SCLAT. & SALV. P. Z. S. 1873, p. 309.—LAYD. Ibis, 1873, p. 396.—HUDS. P. Z. S. 1876, p. 103.—TACZ. P. Z. S. 1877, p. 329. DURNF. Ibis, 1877, p. 196.—FORBES, P. Z. S. 1881, pp. 642-647; *ib.* Ibis, 1881, p. 359.—WHITE, P. Z. S. 1882, p. 627.—BERL. Ibis, 1884, p. 440.—TACZ. Ois. Per. III, p. 331, *partim*.

Parra intermedia SCLAT. P. Z. S. 1856, p. 282 (ex Venezuela, Verr.).

Jacana spinosa STEJN. Auk, 1885, p. 338.

Adult:—Head, neck, and anterior portion of back black with green and purple reflections. Back and wings bright chestnut. Primaries and secondaries pale greenish yellow, the latter tipped with brown; the former bordered with the same color, confined to the apical half of the outer web, and the typical portion of the inner except on the first primary, which has the entire outer web brown. Flanks dark chestnut; breast dull greenish black. Abdomen and under tail-coverts dull purplish. Rump and upper tail-coverts, purplish chestnut. Tail bright chestnut tipped with black. Frontal and side wattles, together with base of bill, bright red. Remainder of bill yellow. Legs and feet olive. Metacarpal spur extremely sharp. Spurs on shoulder of wing yellow. Total length, 10½; wing, 5½; tail, 2⅛; bill (culmen), 1⅜ inches.

Young:—Top of head brown; a black stripe down back of neck, and one from behind the eye to nape, black. Superciliary stripe yellowish white. Throat, front of neck, and entire underparts white, washed on lower neck and upper part of breast with buff. Back bronzy brown; wings bronze-green with chestnut feathers interspersed, chiefly on the shoulders and coverts. Primaries and secondaries as in the adults. Rump and upper tail-coverts chestnut. Tail bronzy brown. Frontal and side wattles rudimentary, red. Bill apparently bluish at base of maxilla, remainder yellow. Legs and feet olive. Total length, 9; wing, 5⅛; tail, 2¼; bill (culmen), 1¼ inches. Specimens vary in size.

HABITAT. Trinidad (Léotaud). Angostura, Venezuela (Umlauff). Parahyba, Brazil (Forbes). Pará (Leyard). Corumbá, Brazil (Smith). Argentine Republic (Hudson). Colombia (Wyatt). Quito, Conadon (Alexander). Peru (Jelski and Stolzmann, Bartlett). Yungas, Bolivia (Rusby).

Linnæus (l. c.) founded this species in 1766, upon the plate 357 in Edwards's drawings called by him, "the Spur-winged Water Hen of Brazil," and gave to it the name of *Parra jacana*, thus employing for his specific term, that of the genus given to these birds by Brisson six years previously, and substituting for that genus the new one *Parra*. The codes of the American and British Ornithologists' Unions have provided, more or less satisfactorily, rules to govern cases when specific names have been elevated to generic rank, and told us what is to be done with such *parvenues*; but neither of them have a word to say as to the proper course of procedure when generic terms are reduced to specific rank, and ornithological nomenclature becomes enriched by such an abominable instance of tautology as exhibited in the name which this, luckily wide-footed, bird is compelled to carry about. Brisson is an accepted authority for genera, and consequently *Jacana* must stand, but I employ Linnæus's specific name under protest, believing that he had no right to willfully ignore the works of previous authors, any more than have ornithologists of the present day, and I think that *jacana* should be rejected as a specific term, and another one substituted. I commend this case to the consideration of the two Unions aforesaid, in order that a similar occurrence may be rendered nugatory in the future, if a way can be found to make it so. Linnæus probably never saw a specimen of Jacana, his knowledge of these birds being confined mainly to Edwards's and Brisson's plates and descriptions, and consequently his description of *P. jacana* is very much mixed, and would seem to apply to two species—the *corpus* to *J. nigra* (*Jacana armata nigra* Briss.), the *dorso* to *J. jacana*.

Jacana nigra.

Parra nigra Gmel. Syst. Nat. 1788, I, p. 708.—Lath. Ind. Orn. 1790, II, p. 762.—Vieill. Ency. Méth. 1823, III, p. 1054.

Parra brasiliensis Gmel. Syst. Nat. 1788, I, p. 708.—Lath. Ind. Orn. 1790, II, p. 763.—Vieill. Ency. Méth. 1823, III, p. 1054.

Parra viridis Gmel. Syst. Nat. 1788, I, p. 708.—Lath. Ind. Orn. 1790, II, p. 763.—Vieill. Ency. Méth. 1823, III, p. 1055.

Parra hypomelæna G. R. Gray, Gen. B. 1846, III, pl.—Sclat. P. Z. S. 1856, p. 283.—Sclat. & Salv. P. Z. S. 1879, p. 346.

Parra melanopygia Sclat. P. Z. S. 1856, p. 283.

Adult:—Entire plumage black glossed with green and purple, these hues varying in intensity and brightness among individuals, the purple being usually the most brilliant upon the wings and mantle. Under wing-coverts black. Tail purplish black. Remiges pale greenish yellow, tipped on secondaries, and bordered on primaries with brownish black, the outer web of first primary being entirely of this color. An upright broad wattle divided into two lobes at the base of maxilla, and two narrow, somewhat lengthened, one pendant from either side of base of mandible, bright orange red. Base of bill orange red, remainder bright yellow. Metacarpal spur developed and pointed. Tarsi and feet greenish black. Individuals of this species apparently vary considerably in size, even from the same locality, and also in the amount of purple reflections on the neck and body. Total length, $7\frac{3}{4}$–$8\frac{3}{4}$; wing, $4\frac{3}{4}$–5; tail, $1\frac{3}{4}$–2; tarsus, 2–$2\frac{1}{4}$; bill (culmen), $\frac{3}{4}$–$1\frac{1}{4}$ inches.

Young:—Top of head brown. Superciliary stripe yellowish white. Stripe from behind the eye, back of neck, and anterior portion of back, rump, and upper tail-coverts black, with a greenish lustre. Throat, neck underneath, and entire underparts, white. Wings bronzy brown. Primaries and secondaries as in the adult. Tail bronzy purple. Bill: frontal wattle yellow; base of maxilla reddish, rest of bill yellow. Legs and feet olive. Total length, $9\frac{1}{4}$ in.; wing, $5\frac{1}{8}$; tail, $1\frac{3}{4}$; bill (culmen), $1\frac{1}{8}$.

Habitat. Carthagena, Mus. Paris (Sclater). Antioquia, Colombia (Salmon). Baranquila, Colombia (Crowther). Panama (McClellan). St. Martha (Lawrence).

This apparently perfectly valid species, described by the older writers very completely, and named by Gmelin, seems either to have been overlooked by authors generally or else for some inexplicable reason deemed to be the same as the *P. jacana* of Linnæus, which it has nothing to do with, and in no way resembles. Gray figures it in his 'Genera of Birds' as *P. hypomelæna*, but gives no description, and places the *P. nigra* Gmel. in his list as a questionable species! Sclater [l.c.] gives it another name, *P. melanopygia*, from Santa Martha, Colombia, separating it from both Gray's bird and *P. nigra* of Gmelin, which last he places as a synonym of *P. jacana* Linn., and so it has gone on among writers up to the present day. In no stage of its plumage can it be confounded with *P. jacana* Linn. I also am unable to perceive any difference in specimens from Santa Martha and those from other localities entitling them to separate specific rank, and have consequently placed *P. melanopygia* Sclater among the synonyms of *J. nigra*. Gmelin's description, *capite, collo, cauda et corpore supra nigro*, proves at once that he had not *jacana* in view, for this species has the tail and body above, bright purple chestnut, with the tips of the rectrices a greenish black. Gmelin's synonym is the *Jacana armata nigra* Brisson, Av. Vol. V, p. 124, No. 3, where an elaborate and complete description of *P. nigra* is given.

Jacana spinosa.

Fulica spinosa Linn. Syst. Nat. 1758, p. 152 (immature).

Parra variabilis Linn. Syst. Nat. 1766, p. 260 (imm.).—Gmel. Syst. Nat. 1788, I, p. 708. — Lath. Ind. Orn. 1790, II, p. 763. — Vieill. Ency. Méth. 1823. p. 1055, pl. 60, No. 2.

Parra jacana Shaw (*nec.* Linn.), Gen. Zool. 1824, p. 263 (desc. and syn. *partim*), pl. 32.

Parra gymnostoma Wagl. Isis, 1832, p. 517.—Gray, Gen. B. 1846, III, p. 589. — Sclat. P. Z. S. 1856, p. 283. 1857, p. 206. 1858, p. 360, 1860, p. 393.— Moore, P. Z. S. 1859, p. 64. — Sclat. & Salv. Ibis, 1859, p. 231. — Taylor, Ibis, 1860, p. 314. — Schleg. Mus. Pays-B. Ralli, 1865, p. 66. —Salv. Ibis, 1870, p. 116. — Wyatt, Ibis, 1871, pp. 116, 383. — Merrill, Bull. Nutt. Orn. Club, 1876, I, p. 88. — Forbes, P. Z. S. 1881, pp. 642, 646.—Salv. P. Z. S. 1883, p. 428.—Baird, Br. & Ridg. W. B. N. A. 1884, I, p. 176. — Cory, B. Hait. & San. D. 1885, p. 159. pl.—Ridg. Man. B. 1887, p. 183.

Parra cordifera Less. Rev. Zool. 1824, p. 135.—Des Murs, Icog. Orn. p. 849, pl. 42.

Parra violacea Cory, Bull. Nutt. Orn. Club, 1881, VI, p. 130.

Adult:—Head, neck, upper part of back and breast, black, with green and purple reflections. Back and wings purplish chestnut. Rump, upper tail-coverts, and tail dark purple. Lower portion of breast and flanks dull maroon. Abdomen, thighs and under tail-coverts dull brownish maroon. Primaries and secondaries pale yellowish green, bordered on the first with blackish brown; this color including the entire outer web of the first two primaries, the secondaries being only tipped with blackish brown. Frontal leaf or wattle divided into three lobes on top, broad above, narrowing to where it joins the forehead, yellow in skin, probably red or orange in life. Base of mandible bluish white, with a space of carmine between it and the wattle; rest of bill bright yellow. Metacarpal spur large and sharp at point. Legs and feet dull olive. Total length, 9; wing, 5-5½; tail, 2¼; bill, 1⅜; tarsus, 2⅛ in.

Young:—Top of head and nape pale brown, a superciliary yellowish white stripe from base of maxilla to nape of neck. A black stripe from behind the eye, narrow at first, but widening as it proceeds, passes down the side of neck, and crosses the upper part of back. Chin, throat, sides and front of neck and entire underparts white, with a strong buff tinge on the upper part of breast. Back and wings pale bronzy brown. Primaries and secondaries like the adult, with slightly more brown on the primaries. Rump and upper tail-coverts purple. Tail purplish black. Frontal wattle rudimentary. Bill yellow, blue at base. Feet and legs olive.

HABITAT. Haiti (Cory). Cuba (Cory). Texas (Merrill). Mexico (De Oca, Markham, Sumichrast). Guatemala (Leyland). Costa Rica (Salvin). Honduras (Taylor). Yucatan (Gaumer). Carthagena, Colombia (Edwards, Sclater).

In 1758 Linnæus gave to the bird from Carthagena represented in plate 48 of Edwards's 'Natural History of Birds,' the name of *Fulica spinosa*. In 1760 Brisson placed this bird among the synonyms of his "Chirugien varié," and some more allied to it, in the genus *Jacana*. In 1766 Linnæus in his 12th edition, disregarding all that had been done before with this species, both as to other authors and his own writings as well, gave the bird of Edwards's plate 48 the specific name of *variabilis*, and placed it in his genus *Parra*, manufactured for the occasion, ignoring the prior claims of Brisson in the premises. That Edwards's plate represents the *P. gymnostoma* auct., and not *P. jacana* auct., is evidenced by both the colored figure and the description, as the latter states that the frontal wattle, or as he calls it, the 'loose flap,' is "scalloped with three scollops on the tip," and his plate shows this, and there is no indication of any side wattles at base of bill. The wattle of *P. jacana* is bi-lobed, and there are pendent side wattles, even in young birds. This is the history of this species up to 1766, and of the way it received its baptism. Now what name must it bear? Those who adhere to the 1758 edition of Linnæus say *spinosa;* those who prefer the 1766 say *variabilis*. I have begun with 1758, not that I am altogether satisfied that it is the proper one, for when an author studiously ignores his own previous writings and consolidates himself, so to speak, as Linnæus does, in his 12th edition, I do not see that any ornithologist should be troubled about earlier dates so far as Linnæus is concerned. But in this instance (as it is a moot question among ornithologists as a class, which edition should have priority), the name *spinosa* means something when applied to a Jacana, and *variabilis* does not, and so I have adopted it. In this 12th edition, there is no mention made of *Fulica spinosa*, either in that genus, or as a synonym of *Parra*, its author having apparently decided to obliterate it entirely.

Specimens of this bird from Cuba and Haiti agree precisely with examples from Mexico and Central America, and therefore *P. violacea* Cory will have to become a synonym.

Metopidius indicus.

Indian Jacana Lath. Syn. Suppl. p. 257.

Parra indica Lath. Ind. Ornith. 1790, p. 765.—Vieill. Nouv. Dict. Hist. Nat. 1817, p. 447; *ib.* Ency. Méth. 1823, p. 1056.—Schleg. Mus. Pays-B. Ralli 1865, p. 67.—Salvad. Ucc. Born. 1874, p. 343.—Ingliss, Str. Feath. 1877, p. 46.—Hume & Davison, Str. Feath. VI, 1878, p. 464.—Cripps, Str. Feath. VIII, 1879, p. 304.—Butl. Str. Feath. IX, 1880, p. 430.—Lloyd, Ibis, 1882, p. 470.

Parra cuprea Vahl. Shrieft. Naturh. Selsk. 1793, II, 2, p. 51.

Parra cristata Vieill. Nouv. Dict. Hist. Nat. 1817, p. 450; *ib.* Ency. Méth. 1823, p. 1055.

Parra ænea Cuv. Règ. Anim. 1817, I, p. 498; *ib.* Règ. Anim. 1829, I, p. 535, —Less. Trait. Ornith. 1831, p. 539.—Nitzsch, Pteryl. 1867, p. 126. —Forbes, P. Z. S. 1881, p. 640.

Parra superciliosa Horsf. Trans. Linn. Soc. XIII, 1821, p. 194; *ib.* Zool. Res. pl. 64 (1824).

Metopidius æneus Wagl. Isis, 1832, p. 279.

Hydralector cristatus Wagl. (*nec* Vieill.), Isis, 1832, p. 280.

Parra atrata Tick. Jour. Asiat. Soc. Beng. 1833, II, p. 582.

Parra melanochloris Vieill. Gal. Ois. 1834, II, pl. 264.

Parra melanoviridis Vieill. Gal. Ois. 1834, II, p. 164.

Metopidius indicus Blyth, Cat. B. Mus. Asiat. Soc. Beng. 1849, p. 273. —Jerd. B. Ind. 1862, p. 708.—Hume, Nests and Eggs Ind. B. 1873, p. 591.—Oates, B. Brit. Burm. 1883, p. 358.

Adult:—Head, neck, breast, flanks, abdomen and thighs rich dark green, glossed in certain lights with purple reflections. Chin white. A broad white stripe extends from above the eye to the nape. Back and wings pale greenish bronze, this color separated on the back from the dark green of the neck by a line of bright purple. Lower back, rump, upper and under tail-coverts maroon. Tail chestnut. Outer secondaries black on inner, bronze on outer webs; innermost ones all bronze. Primaries black with a green gloss. Frontal shield and basal half of maxilla, blue, with a rose-colored spot on either side; remaining portion of maxilla and the entire mandible yellowish green. Metacarpal spur small and blunt. Legs and feet bluish slate color. The bill, according to Oates, varies considerably in color in different individuals. Total length, 10½; wing, 6¾; tail, 2¼; tarsus, 2½; bill along culmen, 1½ in.

Young:—Upper part of head chestnut; eyebrow brownish white; back of neck purplish green; sides of head, chin and throat white; front and sides of neck and upper part of breast bright buff; lower breast, abdomen and under tail-coverts white. Under wing-coverts and flanks purplish black. Back and wings pale bronze green. Rump and upper tail-coverts maroon. Tail has median rectrices bronze; remainder pale chestnut, barred diagonally with greenish black and bordered with white. The young is stated not to assume the adult plumage until the second spring moult.

HABITAT. India, Indo-Burmese Countries, Siam, Cochin-China (Oates), Ceylon (Temminck), Java (Horsfield), Sumatra? Borneo? (Salvadori).

Oates states that this species is spread over a greater part of India, Indo-Burmese countries, Siam and Cochin-China. It has the habits of the Water Hens, frequents swamps and ponds that are covered with floating plants, over which it easily walks. As a rule it is very tame, and takes wing reluctantly. It breeds in the rainy season, and the eggs, usually six in number, are pale buff, thickly covered with tangled black lines.

Metopidius albinucha.

Parra albinucha GEOFF. ST. HIL. Mag. Zool. 1832, cl. II, pl. 6.—ROCH & NEWT. Ibis, 1863, p. 172.—E. NEWT. Ibis, 1863, p. 458.—SCHLEG. Mus. Pays-B. Ralli, 1865, p. 70; *ib.* P. Z. S. 1866, p. 425.—POLL. & VAN DAM. Rech. Faun. Mad. 1868, p. 136.—FINSCH & HARTL. Vög. Ost. Afr. 1870, p. 783.—HARTL. Vög. Madag. 1877, p. 352.

Parra atricollis SWAINS. Anim. Menag. 1838, p. 334, sp. 160.

Adult:—General plumage of the body cinnamon brown; nape and sides of head, throat and front of neck black; back of neck white. Front of head bare, bluish black. Wings cinnamon brown like the body, primaries black with a greenish gloss. Upper tail-coverts white. Tail reddish cinnamon, tips of middle rectrices greenish black. Bill bluish black at base, inclining to horn color at the tip. Feet and tarsi apparently a bluish black. Wing, 6⅛ in.; tail, 2½ in.; bill, 1¼ in.

HABITAT. Madagascar (St. Hilaire, Hartlaub).

Metopidius africanus.

Parra africana GMEL. Syst. Nat. 1788, p. 709.—VIEILL. Nouv. Dict. Hist. Nat. 1817, p. 447.—LESS. Trait. Ornith. 1831, p. 539.—SWAIN. Zool. Illus. 1831-32, pl. 6.—G. R. GRAY, Gen. B. 1846, p. 589.—HEUGL. Syst. Ueb. Vög. N. O. Afrik. (1885), p. 255.—KIRK, Ibis, 1864, p. 334.—MONTEIRO, P. Z. S. 1865, p. 90.—SCHLEG. Mus. Pays-B. Ralli, 1865, p. 69; *ib.* P. Z. S. 1866, p. 425.—NITZSCH, Pteryl. 1867, p. 126.—POLL. & VAN DAM. Rech. Faun. Madag. 1868, p. 137.—GRAY, Handl. B. 1871, p. 70.—ANDERS. B. Damar-L. 1872, p. 328.—GARROD, P. Z. S. 1873, pp. 469, 641; 1875, p. 348.—HEUGL. Orn. Nord. Ost. Afr. (1873), No. 825.—HARTL. Vög. Madag. 1877, p. 354.—FINSCH & HARTL. Vög. Ost. Afr. 1870, p. 781.—FORBES, P. Z. S. 1881, pp. 640-642.—LAYD. B. S. Af. 1884, p. 649.

Metopidius africanus WAGL. Isis, 1832, p. 279.

Adult:—Front and top of head bare, in life bluish black; back of head and neck black tinged with green; throat, sides of head and front of neck white, passing into golden yellow on the upper part of the breast; entire plumage of the body bright cinnamon brown, divided on the under surface from the golden hue of the chest by a narrow dark line. Tail dark cinnamon red, tips of rectrices greenish bronze. Wings reddish cinnamon, primaries purplish brown, tips greenish. Metacarpal spur small and blunt. Bill bluish black, pinkish at the tip; tarsi and feet ash color. Total length, 10 in.; wing, 6; tail, 1¾.

HABITAT. Senegal, Gambin, Gold-coast, Gaboon, Benguela, Damara-Land (Heuglin). Coroca River, Mossamedes, Humbé (Anchieta). Okovango, Teonghe, and Boletle Rivers (Andersson). Lake Nzami (Andersson). Natal (Ayres). Algoa Bay, Mozambique (Heuglin). Zambesi (Kirk). Madagaska, Zambesi (Kirk).

Andersson says he never saw this species in Great Namaqua Land, and that it is scarce in Damara-Land, but common at Lake Nzami and the Okovango River. It goes in pairs or small flocks, has a lively disposition, and is generally easy of approach. In Natal, according to Ayres, it is found in considerable numbers in the lagoons and pools. Their food consists entirely of the seeds of plants and small insects.

Aphalus capensis.

Parra capensis SMITH, Birds S. Afr. 1849, pl. 32.—ANDERSS. P. Z. S. 1864, p. 7.—AYRES, Ibis, 1864, p. 360.—GURN. Ibis, 1864, p. 360.—ANDERSS. B. Damara-L. 1872, p. 330.—LAYD. B. S. Afr. 1884, p. 649.

Forehead yellow, superciliary stripe white; crown and nape, together with a narrow bar on side of neck at base, sides of the body and tail, dark reddish orange; back of neck purplish black; sides of neck and breast greenish yellow, chin, throat, breast, belly and under tail-coverts, white. Wings and back grayish brown. Metacarpal spur, small and blunt. Bill yellowish brown. Legs and feet greenish yellow. Total length, 7¼; wing, 3¾; tail, 1 5-6.

Habitat. South Africa, Natal (Ayres). Damara-Land (Andersson). Algoa Bay (Smith).

This species, described by Sir Andrew Smith (l. c.) is smaller than its relative the *M. africana*, and dwells in similar localities. In Natal, Mr. Ayres found them abundant on Sea Cow Lake, and if they approached any of the larger species they were immediately chased away, and there was constant squabbling between them. One habit this bird possesses is peculiar, that of dipping the head up and down like some of the small Plovers. Like *M. africana*, Andersson says, it does not occur in Great Namaqua-Land, is rare in Damara-Land, but common in the Lake regions, and on the Okovango, where it breeds.

As this species has the head fully feathered it cannot very well be placed in the genus *Metopidius*, with *albinucha* and *africanus*, which have the top of the head more or less bare of feathers, and I have therefore proposed the term *Aphalus* (**ἄφαλος**) for it, with the following characters. Head completely feathered. No wattles or fleshy crest upon the head. First and second primaries longest, third, fourth and fifth equal. Closed wing reaches to near the tip of tail. Tarsi strong and short. Bill straight, slender, wedge-shaped at tip.

Hydralector gallinaceus.

Parra gallinacea Temm. Plan. Col. pl. 464.—Less. Trait. Ornith. 1831, p. 539.—Gould, B. Austr. IV, pl. 75; *ib.* Hand. L. B. Austr. 1865, II, p. 330.—G. R. Gray, Gen. B. 1046, III, p. 589; *ib.* P. Z. S. 1860, pp. 365, 438. —Ramsay, Ibis, 1867, p. 417, pl. 8, f. 3, egg.—D'Albert. P. Z. S. 1875, p. 530; *ib.* Ann. Mus. Civ. Gen. 1875, VIII, p. 799.—Ramsay, P. Z. S. 1847, p. 344; *ib.* Proc. Linn. Soc. N. S. W. 1877, II, p. 199.

Hydralector gallinaceus Wagl. Isis, 1832, p, 280.—Wald. Trans. Zool. Soc. 1872, VIII, p. 92.—Meyer, Ibis, 1879, p. 141.—Forbes, P. Z. S. 1881, p. 647.—Salvad. Orn. Pap. e Moll. 1882, II, p. 308.

Hydralector cristatus Reich. (*nec* Vieill). Syn. Av. Ras. 1848, pl. 112.

figs. 1126–29.—G R. GRAY, Handl. B. 1871, II, p. 70.—GARROD, P. Z. S. 1873, p. 34.

Parra cristata SCHLEG. (*nec* VIEILL.) Mus. Pays-B. Ralli, 1865, p. 68.—SHARPE, Trans. Linn. Soc. 1877, XII, p. 505.

Parra novæ-guineæ RAMSAY, Trans. Linn. Soc. N. S. W. 1878, II. p. 298, 1879, IV, p. 102.—SALVAD. Ibis, 1879, p. 327.

Adult:—Top of head, occiput, and stripe down the back of the neck, narrow line over upper part of back at base of neck, breast, flanks and under wing-coverts, black. Throat white. Sides of head and neck, as well as the neck in front, golden yellow. Spot from eye to base of mandible black. Back and wings pale, shining, grayish olive. Primaries greenish black. Rump and upper tail-coverts grayish olive, feathers tipped with black. Abdomen, thighs and under tail-coverts white. Tail dark olive green, almost black in certain lights. Forehead covered by a naked shield, having a central, horizontal, flat, keel-shaped membrane, extending from its posterior limits along the culmen nearly to the nostrils. This, together with the basal two thirds of the bill, is yellow in skin (aurora-red, according to Gould, in life); apical third of bill blackish brown. Metacarpal spur small and blunt. Legs and feet olive. Gould says that the "forepart of tibia is red with a mixture in patches of yellow and greenish-gray." There is no indication of this in the specimens before me. Total length, 9 in.; wing, 5¼ in.; tail, 2 in.; bill, 1¼ in. Young have entire under surface white; head and occiput, reddish chestnut; back, reddish brown.

HABITAT. Celebes (Meyer, von Rosenberg), Banda (G. R. Gray), Mysol (Wallace), Yule Island, Naiabui, New Guinea (D'Albertis), Port Essington, Austr. (Gould), Queensland, Northeastern New South Wales (Ramsay).

Specimens from New Guinea, according to Ramsay, differ somewhat, especially in the darker color of the wings; but, as Salvadori says, examples from New Guinea and Australia resemble typical ones from Celebes, and the differences of certain individuals are not sufficient to constitute a specific separation. He concludes his remarks, however, by mortgaging the Australian bird, by saying, that if it is deemed necessary to impose a new name upon it, he suggests *Hydralector novæ-hollandiæ.* The evidence presented to me by the specimens at my command does not render it necessary that this mortgage should be foreclosed as yet.

Hydrophasianus chirurgus.

Le chirurgien de l'Isle de Luçon, SONN. Voy. Nov. Guin. 1776, p. 82, pl. 45.

Tringa chirurgus SCOP. Del. Flor. Faun. Insub. 1786, p. 92 (ex SONN.).

Parra luzoniensis GMEL. Syst. Nat. 1788, I, p. 709, No. 13.—VIEILL. Ency. Méth. 1823, p. 1057.

Parra sinensis GMEL. Syst. Nat. 1788, I, p. 709, No. 15. — LESS. Trait. Orn. 1831, p. 539. — SCHLEG. Mus. Pays-B. 1865, p. 71. — NITZSCH, Pteryl. 1876, p. 126. — VIEILL. Gal. Ois. 1834, p. 165, pl. 265. — DAVID & WEND. Str. Feath. 1878, VII, p. 89.—KELHAM, Ibis, 1882, p. 185.

Hydrophasianus sinensis WAGL. Isis (1832) p. 270. — HEND. & HUME, Lahore to Yark. 1873, p. 290.—BLYTH, B. Brit. Burmah, 1875, p. 157.

Parra phœnicura HODG. Gray's Zool. Misc. p. 86.

Hydrophasianus chirurgus BLYTH, Cat. B. Mus. Asiat. Soc. Beng. 1849, p. 273. — JERD. B. Ind. 1864, III, p. 709. — HUME, Nest and Eggs Ind. B. 1873, p. 592. — SALVAD. Ucc. Bor. 1874, p. 343. — HUME & DAVISON, Str. Feath. VI, 1878, p. 464.—BALL, Str. Feath. VII, 1878, p. 229. — CRIPPS, Str. Feath. VII, 1878, p. 304. — DOIG, Str. Feath. VII, 1878, p. 371. — DAVID & OUST. Ois. Chine, 1877, p. 483. — LEGGE, B. Ceyl. 1880, II, p. 914. — FORBES, P. Z. S. 1881, pp. 640, 642. — OATES, B. Brit. Burm. 1883, p. 360. — MURR. Vert. Zool. Scinde, 1884, p. 259.

Adult:—Head, throat, and front of neck white. Nape black; hind part of neck bright golden yellow, separated from the white in front by a narrow black line. Back shining purplish brown, entire underparts purplish black. Rump, upper and lower tail-coverts, and tail blackish brown. Four median rectrices greatly lengthened. Wings have scapulars and tertials dark olive brown; upper and under wing-coverts, and secondaries white, the tips of the outer secondaries being brownish black. First primaries black; second black with a large part of the basal half of inner web white; third nearly all white on inner web, and the remaining ones all white save the tips, which are brownish black. First primary for about an inch from the tip is bare, with a narrow web at the end; next two with the shafts extending beyond the web; the remainder attenuated at the tip, diminishing in length as the innermost primary is reached. Metacarpal spur developed, sharp. Bill light blue at base, tip greenish. Legs and feet plumbeous blue. Claws black. Iris deep brown. Total length, 18-21; wing, 8-9¼; tail, 11-12¾; middle toe and claw, 3-3¼; bill at gape, 1¼ in.

Winter plumage:—Top of head and centre of hind neck, back, scapulars and tertials, hair-brown, with green and some bronze reflections on the back. Lesser and greater wing-coverts pale brown, the feathers barred with blackish brown and white toward the tips; rest of wing as in breeding plumage. A white stripe extends from the base of the bill over the eye; a black one runs from the gape through the eye and down the sides of the neck, terminating in a band across the chest. A shining golden stripe, continuous with the superciliaries, extends down the sides of the neck, behind this black one. Throat and front of neck and entire under surface pure white. Some feathers on flanks mottled with brown. Rump and central tail-feathers moderately lengthened, hair-brown, darkest on the rump; rest of tail white.

HABITAT. Java, Borneo and Philippines (Oates). Formosa (Swinhoe). Java (Diard). Borneo (Salvadori). Ceylon (Legge). — India, as far as Scinde and Cashmere, Ceylon, China, Cochin-China, Malay Peninsula (Oates).

This state of plumage is frequently regarded as that of the immature bird; but these differ, according to Legge, by having a ferruginous stripe over the eye, front neck fulvous, the golden neck stripe paler, and a less developed chest band. The breeding plumage appears to be assumed by the feathers changing color, and not by a moult. In Chinese examples sometimes the hind neck golden patch is very large and the black border very broad. According to Hume, this is a shy species, running with wonderful facility over the floating weeds, lotus leaves, etc., and when alarmed, concealing itself by lying close to the plants, with its head and neck stretched out on a level with the body; sometimes, when possible, it will sink half of its body in the water. It is also an expert diver. It breeds from June to about the middle of September, according to locality. The nest, nearly two feet in diameter, is made of weeds and roughly put together, sometimes placed on the surface of the water, or on an island close to the water. The eggs, four in number, vary in color from pale brown to a deep rufous, and are covered with tangled lines of blackish, or reddish brown. The shell has a very lustrous appearance.

A NEW FORM OF CLAPPER RAIL.

BY GEORGE B. SENNETT.

Rallus longirostris scottii, subsp. nov. SCOTT'S RAIL.

The darkest of all the large Rails. Prevailing color on back very dark brown or black. This color prevails to such an extent that in most adults little notice would be taken of the olive gray edgings. Underparts also darker and with much less cinnamon than others of the genus. Flanks more distinctly barred dark brown and white. Full grown young of the year dark brown, but not so nearly black as adults.

Types, ♂ ad. Collector's No. 4123, Dec. 27, 1886; ♀ ad. Collector's No. 4127, Jan. 8, 1887.

HABITAT: West Coast of Florida.

Types in American Museum of Natural History, New York. Collected by W. E. D. Scott, Tarpon Springs, Fla. Immature birds in National Museum, Washington, taken at Charlotte Harbor, Florida.

I had intended for this number of 'The Auk,' in connection with this short description of the new form, a paper on the entire group of large Rails. Although I have had large series at my command for study, yet the promise of still many more from various localities, leads me to defer the article for a future number, when it can be more satisfactory.

RECENT LITERATURE.

Palmén's Contributions to the Knowledge of the Bird Fauna of the Siberian Coasts of the Arctic Sea.*—The celebrated author of the 'Zugstrassen der Vögel' has given us in the work before us one of the most important and comprehensive, not to say *the* most important and comprehensive treatise on Arctic birds ever written. The public has been impatiently awaiting the publication of the ornithological results of Nordenskiöld's famous expedition (1878–1879), and though long delayed, it is nevertheless highly welcome to the students of northern ornithology.

The working up of the material could not have fallen into better hands, and we are thankful that the author has not only treated of the species collected, but that he also included those found by others, and particularly that he has given us a special chapter on the distribution of the species within the entire Arctic province, accompanied by a comprehensive bibliography.

Hitherto we have had no exact knowledge of the birds occurring along the Arctic coasts of Siberia, except a few scattered notes as to the birds inhabiting the extreme west or the extreme east of the territory, and Middendorff's observations in the Taimur Peninsula. We know that the Atlanto-glacial forms must meet their Pacifico-glacial neighbors somewhere on the coast in question, but just where we could only guess at. Palmén's eight tables (appended between pp. 500 and 501) are here of the greatest importance.

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* Bidrag | till kännedomen om | Sibiriska Ishafskustens fogelfauna | enligt | Vega-expeditionens | iakttagelser och samlingar | bearbetade | af | J. A. Palmén. < Vega-Exped. Vetensk. | Iakttag, V, pp. 241–511. (Stockholm, 1887).

But it would carry us too far were I to give a resumé of all that is interesting in his book. I shall only mention that it is divided into four parts, the first of which treats of the localities in which the observations were made, and their physiographical character. The second, comprising the bulk of the memoir, contains the observations, localities, technicalities, etc., arranged under the head of each species, eighty of which are numbered as collected by the 'Vega' Expedition. The third part is devoted to the changes in the bird life on the northern coast of the Tschuktschi Peninsula during 1879, while the fourth treats of the distribution of the species over the entire Arctic province together with a synopsis of the literature. Finally (pp. 501-511) there are some general remarks, with tables, relating to the composition of the avifauna of the Tschuktschi Peninsula.

Want of time and space prevents me from going into detail, and when, in the following, I attempt to make a few desultory remarks, it is because they may be regarded as answers to questions raised by Palmén in his paper, to which I might be regarded as the proper respondent.

Palmén's doubt (p. 272, footnote) in regard to the statement made by Nelson (Cruise of the Corwin, 1881, p. 62) that Mr. Dall obtained a specimen of *Anthus pratensis* at St. Michael's, Alaska, is fully justified, as the specimen in question really is an *A. cervinus*. The former species has not been found in Alaska.

The remarks by Prof. Palmén in regard to the correctness of referring the East Asiatic Dunlins to the American form *Tringa alpina pacifica* has led me again to look into the question, and I can but state that after having carefully gone over the immense series of the U. S. National Museum, which has been considerably increased since I identified my Kamtschatkan specimens four years ago, I am still upholding that determination as correct. Palmén pays almost exclusive attention to the size of the two alleged forms, but it is quite plain that in birds of such variability of size as shown by the Dunlin this character can only be one of secondary consideration. The West-palæarctic form, *T. alpina typica*, differs clearly in coloration from the bird inhabiting both sides of the Pacific.

The latter is brighter above, and usually more red; the white on face and neck is purer, the black streaks and spots smaller, and the black patch on the belly purer and better defined. But there is also an *average* difference in size between the two forms, for in the American subspecies the wing varies between 111 and 126 mm. and the exposed culmen between 35 and 45 mm. while the corresponding range in the typical form seems to be 109 to 117 mm. and 27 to 35 mm. With the exception of one specimen (No. 89,180) the Bering Island birds come within the former limits, and in coloration they agree minutely with the brightest American skins. In addition I may quote a pair of Japanese birds recently received. As to color they are typical *T. pacifica*, while the measurements run as follows:

U. S. Nat. Museum No.	Collector.	Sex and age.	Locality.	Date.	Wing.	Tail-f.	Exp. Culmen.	Tarsus.	Middle toe with claw.
109,427	Namiye	♂ ad.	Shimosa, Hondo, Japan	Apr. 22, 1883	121	54	39	28	. . .
109,426	do	♀ ad.	" " "	June 2, 1886	118	51	40	27	24

These are undoubtedly the same as the American birds. It is also well to bear in mind that Dr. Coues's type of *T. pacifica* (U. S. Nat. Mus. No. 9540) is the largest specimen in our immense series, viz., wing, 126 mm.; tail-feathers, 59 mm.; exposed culmen, 44 mm.; tarsus, 28 mm.; middle toe, with claw, 25 mm.

Palmén is quite right in supposing (p. 319, footnote) that the so-called *Tringa minutilla* collected by Dr. T. Bean* in Plover Bay, August 13, 1880, was erroneously identified, but he is wrong in supposing it to belong to *T. temminckii*, with which it could never be confounded, as the latter has a simply graduated tail with the outer tail-feathers pure white, and only the first primary with a white shaft, while the specimen in question has a doubly excised tail, gray outer rectrices, and white on the shafts of all the primaries. It is a young bird which in its general coloration and in most of its characters agrees closely with *T. minutilla*, but a close comparison with specimens of the latter in corresponding plumage shows that Bean's specimen is different. Point for point, however, it agrees minutely with a young *T. ruficollis* which I myself collected on Bering Island (U. S. Nat. Mus., No. 92,796), and to this species the specimen in question undoubtedly belongs. As already stated, young *T. minutilla* and *ruficollis* are very much alike, but the latter may be distinguished by longer wings, stouter and *comparatively* shorter bill, more white on the shafts of the primaries and broader white edges to the inner (proximal) primary quills, grayish rump with lighter edges to the feathers, instead of the nearly solid black rump of the other species, generally lighter upper surface, more grayish sides of head and neck, and uniform grayish chest which in *T. minutilla* usually is more streaked with dusky. Bean's specimen (U. S. Nat. Mus., No. 81,413) measures as follows: wing, 97 mm.; tail-feathers, 45 mm.; middle toe with claw, 17 mm.; exposed culmen, 15.5 mm.

Very interesting is the demonstration (pp. 343-346) of the occurrence of *Charadrius dominicus*, the American Golden Plover, on the Tschuktschi Peninsula, which goes to show that the ranges of the two races cross each other in the region bordering the northern part of Bering Sea, the

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*Proc. U. S. Nat. Mus., V, 1882, p. 164. By a curious mistake Palmén quotes this specimen as collected by Mr. Dall, and throughout the book he refers to Dr. Bean's observations in the paper quoted as made by Dall (*e.g.* pp. 491, 492, 494, etc.). In the first sentence of the paper Dr. Bean distinctly states that "the collection ..... was made by the writer [Bean]."

Asiatic form, *Ch. d. fulvus*, migrating into northwestern Alaska to breed, and the American form crossing Bering's Strait into Asia. Mr. Ridgway and I have examined immense series of these birds from the regions in question apropos of his 'Water Birds of North America' and 'Manual of North American Birds,' as well as my 'Ornithological Explorations in Kamtschatka' and my various papers on Japanese and Hawaiian ornithology; and from the fact that we found no *Ch. fulvus* among the numerous Golden Plovers collected during the migrating season in more southern latitudes in America, and no *Ch. dominicus* among the Asiatic or Australian specimens, we concluded that all *Ch. dominicus* migrate south along the American coasts, and all *Ch. fulvus*, whether bred in Alaska or not, along the Asiatic shores. I am inclined to conclude that the Tschuktschi individuals of *Ch. dominicus* also retrace their steps across Bering's Strait and join their American confrères in going South, for, even if there were no further evidence, it seems probable that were the small Tschuktschi colony of the American form to travel along the migrating routes of *Ch. fulvus* they would soon be utterly absorbed by the latter. I do not believe that two *races* (and Palmén admits that they are only races, p. 346) can migrate along the same route without their becoming entirely assimilated. Of course, single individuals, or even small detached flocks, of one race may be led by some accident to follow the route of the other race, especially in a case like the present where the apparent routes cross each other, but these individuals prove nothing as to the *regular* route of the race, so that even if isolated specimens of *Ch. dominicus* should be found occasionally in southern latitudes of Eastern Asia, such occurrence would be no valid argument against the generalization made by me (Results Orn. Expl. Kamtsch., p. 105), in fact, they are to be *expected*, and it would be strange indeed did they not occasionally occur. Prof. Palmén, however, takes exception to my conclusion, simply because Swinhoe in former days recorded the capture of both *Ch. fulvus* and *dominicus* (*virginicus*, as he called it) in China and Japan, and he thinks it unsafe to generalize before all Swinhoe's examples have been re-examined. Now, in the first place, it is pretty safe to say that Swinhoe at that time had not grasped the true differences between the two forms; in the second place, Mr. Seebohm, the present owner of the Swinhoe collection has expressly declared that *Ch. virginicus* "has not yet been found in Asia"; in the

U. S. Nat. Museum No.	Collector.	Sex.	Locality.	Date.	Wing.	Tarsus.
					mm.	mm.
107,067	Swinhoe	♀	Canton, China	April 30, 1860	166	44
107,066	"	....	Amoy, "	Sept., 1866	161	42
107,104	"	....	" "	Oct. 15, 1866	160	42
107,103	"	....	" "	Oct. 15, 1866	168	43
107,068	"	....	" "	Sept., 1867	154	44
37,757	"	....	" "	 1867	163	45
107,107	"	....	Hainan, "	April, 1868	164	44
107,108	Blakiston, 1644	♀	S. Yezo, Japan	July 14, 1874	161	43

third place, I have before me seven specimens collected by Swinhoe in China and one from Japan determined by him; these are all true *Ch. fulvus* as will be seen from the accompanying measurements, but the conclusive part of it is that the first and the last specimens of the series measured are determined by Swinhoe as *Ch. virginicus*, this name being written on the labels in his own handwriting, while the others are named *Ch. fulvus*.

I may finally mention that one of the stray migrants of *Ch. dominicus* to be expected on the route of *Ch. fulvus* seems to have been captured by the 'Vettor Pisani' party in Olga Bay, Gulf of Tartary, September, 1879 (Giglioli and Salvadori, P. Z. S., 1887, p. 585; publ. 1888). The wing of this specimen measured 180 mm., and consequently is considerably larger than the average *Ch. fulvus* but there is a probability that some of the large specimens of East-Asiatic Golden Plovers may not be pure-bred, as interbreeding between the two so closely allied forms is almost certain to take place where their ranges meet.

In regard to the *Grus* mentioned on p. 348 as having been taken "to the north of Jakutsk," on Mr. Taczanowski's authority, I may remark that the latter gentlemen has afterwards specified the locality as being "Cap Tschukotsk" (Bull. Soc. Zool. France, 1876, p. 246) whence came also the specimens of *Turdus aliciæ* and *Macroramphus* quoted by him (*l. c.* pp. 148, 255).

I am pleased to see that Prof. Palmén has arrived quite independently at the same results in regard to *Rissa pollicaris* as myself. The North Pacific Kittiwake is certainly more distinct than has formerly been supposed, and there is no good reason for including the true *R. tridactyla* among the birds of that region.

On page 370 Prof. Palmén describes a new subspecies of the Herring Gull as *Larus argentatus* var. *vegæ*, "characterized by a particularly dark gull-gray mantle and flesh-colored legs," from the countries bordering on Bering Sea and adjacent waters. There is no doubt in my mind that this is the bird which North American ornithologists (including A. O. U. Check List) call *Larus cachinnans* "Pallas," and I have always had a suspicion that the color of the feet of this bird as given in North American publications was erroneous, it being in most cases stated to be yellow, and my suspicion has been confirmed by the fact that Mr. P. L. Jouy in his ms. catalogue gives the color of feet of two specimens from Japan (Jouy, Nos. 1030, 1031) otherwise indistinguishable from *L. cachinnans* Auct. Amer. as "very pale flesh color." The Mediterranean bird, on the other hand, is known to have yellow feet, and as Pallas describes his *L. cachinnans* as having "pedes pallide flavescentes" (Zoogr. Ross. As., II, p. 319), with the principal habitat "Mare Caspium," while he does not mention it as occurring in the Pacific, it seems as if Palmén were right in giving the form from the North Pacific a new name. I am not prepared, however, to accept as yet a trinominal appellation, as the true status and relationship of the present Gull are not well established, and propose to recognize it as *Larus vegæ* (Palmén).

Had Palmén consulted my 'Remarks on the species of the Genus *Cep*-

phus' (Proc. U. S. Nat. Mus., VII, 1884, pp. 210-229) he would have found all the doubts expressed by him on pp. 390-391 in regard to the distribution of *Cepphus mandtii* in the Pacifico-glacial waters cleared up, and he would not have urged a reopening of the question.

Whether *Anser gambeli* really differs *sufficiently* to be recognized as a separate race of *A. albifrons*, is to my mind rather doubtful, as the Old World material at my command is very scanty, and I am afraid that the Old World ornithologists are in about the same difficulty with respect to *A. gambeli*. However, Mr. Ridgway and I, going over our material conjointly, found that the length of the exposed culmen in typical *A. albifrons* varies between 40 and 45 mm., while in *A. gambeli* the range is between 46 and 60 mm. The 'Vega' expedition skin with a bill of 47 mm. consequently falls within the limits of *A. gambeli*, and confirms my conjecture that all the birds of the Asiatic Pacific coast belong to this form.

Palmén, on p. 442, charges that authors have overlooked Kittlitz's statement in regard to the supposed occurrence of *Philacte canagica* (*Anser pictus* Pall.) in Kamtschatka, but on p. 318 of my 'Results, etc.,' he will find that I have referred to Kittlitz's bird, and identified it as probably belonging to *Branta hutchinsii*, a reference which is no doubt entirely correct.—L. Stejneger.

A Catalogue of the Birds of North Carolina.*—The author is induced to present this work in its "present imperfect form" in "the hope that the publication now of the records of the work, so far as it has progressed, may stimulate a desire in resident North Carolinians in different parts of the State to collect material and record observations of the birds to be found within our State limits." Two hundred and fifty-five "species and subspecies" are enumerated, of which "about 120 species have been observed and absolutely identified" by the author, who acknowledges his indebtedness, for notes on the occurrence of the major portion of the remaining one hundred and thirty-five, to Charles F. Batchelder, William Brewster, H. H. and C. S. Brimley, and John S. Cairnes, but has evidently overlooked Coues's 'Birds observed at Fort Macon, N. C.,'† and also Sennett's 'Observations in Western North Carolina Mountains in 1886,'‡ which contain twenty species not included in the present 'Catalogue,' while a re-examination of Cairnes's list will add one more. Being largely based on the printed works of the authors mentioned, it contains comparatively little original matter requiring comment, but notices of the capture of *Chen cærulescens* ("taken on Bogue Beach, one mile from Fort Macon in spring of 1884") and *Spizella pallida* ("Chapel Hill, March 8, 1886") are apparently here recorded for the first time. An appendix,

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* Preliminary Catalogue of the Birds of North Carolina, with notes on some of the species. [By] George F. Atkinson. Contributed from the Biological Laboratory of the Univ. of N. C., No. VI. Journal of Elisha Mitchell Scientific Society, 1887, Part 2.

† Proc. Acad. Nat. Sci. Phila., 1871, pp. 18-47; 1878, pp. 22-24.

‡ Auk, Vol. IV., July, 1887, pp. 240-245.

"Containing a List of [81] Birds we may reasonably expect to take in the State," is given in conclusion. Several of the species here mentioned hold a rather doubtful place, and others might obviously be included, while two have before been given in the body of the work. The list is well printed, with but few typographical errors, and its author is to be congratulated on having inaugurated a movement to thoroughly investigate the avifauna of this most interesting State.—F. M. C.

Minor Ornithological Publications.—The 'American Field,' Vols. XXIII to XXVIII, 1885-1887, contains, in addition to articles from the 'American Naturalist,' 'The Auk,' 'Popular Science Monthly,' etc., the following (Nos. 1200-1286):—

1200. *The Genus Helminthophaga.* By Dr. Morris Gibbs. *American Field*, Vol. XXIII, No. 1, Jan. 3, 1885, p. 8.—A review of the four species of this genus which have been recorded from Kalamazoo County, Mich.

1201. *The Crow.* By F. L. Paine. *Ibid.*, No. 1, Jan. 3, p. 9. On its destructiveness to crops.

1202. *Migration in the Mississippi Valley.* By W. W. Cooke. *Ibid.*, No. 2, Jan. 10, p. 32.—A call for observers of the migration in the region mentioned.

1203. *Caging Quails.* By A. Scherer. *Ibid.*, No. 2, Jan. 10, p. 32.

1204. *Arrival of Chinese Game Birds.* From the 'Portland Oregonian.' *Ibid.*, No. 3, Jan. 17, p. 57.

1205. *How to Identify Birds.* By Everett Smith. *Ibid.*, No. 6, Feb. 7, p. 127.—An offer to name specimens forwarded for examination.

1206. *The Loggerhead Shrike in Virginia.* By Plover [John S. Wise]. *Ibid.*, No. 7, Feb. 14, p. 152.

1207. *The Genus Vireo in Michigan.* By Dr. Morris Gibbs. *Ibid.*, No. 9, Feb. 28, p. 200.—A review of the six species which occur in the State.

1208. *What the Crow Eats.* By E. S. Stark. *Ibid.*, No. 11, March 14, p. 248. (See also note under same heading by N. Ferguson.)

1209. *Inheritance in Birds.* By E. Haugh. *Ibid.*, No. 12, March 21, p. 272.—A Canary imitates the call of a young chicken.

1210. *The European Sparrow.* *Ibid.*, No. 13, March 28, p. 295.—A letter from Robert Ridgway to Captain W. McK. Heath, condemnatory of *Passer domesticus* and approving of its complete extermination.

1211. *What the Crow Eats.* By Frank Felkman. *Ibid.*, No. 16, April 18, p. 367.

1212. *A Hybrid Duck.* By G. Frean Morcom. *Ibid.*, No. 16, April 18, p. 368.—*Anas boschas* + *Anas obscura*.

1213. *The Family Picidæ in Michigan.* By Dr. Morris Gibbs. *Ibid.*, No. 18, May 2, p. 415.—A review of the nine species recorded from the State. (See also No. 19, May 9, p. 438.)

1214. *The Merciless War upon the Birds.* By Charles Aldrich. *Ibid.*, No. 20, May 16, p. 463.—On the destruction of birds for millinery purposes and the necessity of passing stringent laws for their protection.

1215. *Quail, Partridge, Grouse.* By Julius P. de Conine. *Ibid.*, No. 23, June 6, p. 536.—On their correct vernacular names.

1216. *A Mallard Duck's Nest in a Tree.* By E. O. Brauns. *Ibid.*, No. 23, June 6, p. 536.—Near Tracy, Minn., a Mallard appropriates an old Hawk's nest placed twenty feet from the ground in an oak tree twenty feet from the nearest water.

1217. *A Quail Inters its Mate.* From the 'Chicago Times.' *Ibid.*, Vol. XXIV, No. 10, Sept. 5, p. 223.—A male Quail, in confinement, removes from the nest the body of its dead mate, buries it, and completes the task of incubation.

1218. *The Rain Crow and Log Cock.* By Col. G. D. Alexander. *Ibid.*, No. 11, Sept. 12, pp. 246-7.—On the habits of the Cuckoo and Pileated Woodpecker.

1219. *Domesticating Wild Mallards.* By James P. Leach. *Ibid.*, No. 12, Sept. 19, p. 270.

1220. [*A Quail on a Church Steeple.*] By George N. Billings. *Ibid.*, No. 13, Sept. 26, p. 296.

1221. [*The Great Horned Owl.*] By G. O. G. *Ibid.*, No. 18, Oct. 31, p. 416.—Notes on its habits.

1222. [*Quail Nesting in November.*] By A. J. *Ibid.*, No. 23, Dec. 5, p. 538.—A nest with eleven fresh eggs found at High Point, N. C., November 16. [See also *Ibid.*, No. 24, Dec. 12, p. 562.)

1223. [*Hawks killed for Bounty.*] *Ibid.*, No. 24, Dec. 12, p. 562.—One thousand, five hundred and twenty-two Hawks said to have been killed during the last nine months in Cape May County, N. J.

1224. [*Wild Pigeons in California*]. *Ibid.*, No. 24, Dec. 12, p. 562.—Reported to be abundant near Watsonville, Cala.

1225. *Bird Ways.* Editorial. *Ibid.*, No. 25, Dec. 19, p. 577.—A review of Mrs. Olive Thorne Miller's book entitled 'Bird Ways.'

1226. *A Parrot's Affection for a Puppy.* By Geo. D. Alexander. *Ibid.*, No. 25, Dec. 19, p. 585.

1227. [*A Golden Eagle at Bear Island, Nova Scotia.*] *Ibid.*, No. 25, Dec. 19, p. 585.

1228. *Self-Domestication of a Partridge.* By Geo. D. Alexander. *Ibid.*, No. 26, p. 609.—A Quail makes its appearance daily to receive a share of the food given to barnyard fowls.

1229. [*A. O. U. Committee on Bird Protection.*] Editorial. *Ibid.*, Vol. XXV, No. 6, Feb. 6, 1886, p. 129.—Notice of the formation of a committee to promote the protection of birds.

1230. *A Wonderful Parrot.* By Jos. R. Trissler. *Ibid.*, No. 11, March 13, p. 250.—On the accomplishments of a tame Parrot.

1231. *Fashion and the Birds.* Editorial. *Ibid.*, No. 12, March 20, p. 265.—On the destruction of birds for millinery purposes.

1232. [*An Odd Looking Fowl.*] By S. M. Harper. *Ibid.*, No. 12, March 20, p. 272.—A hybrid between a Guinea fowl and a game chicken.

1233. [*Ostriches for California.*] *Ibid.*, No. 15, April 10, p. 345.—Thirty-six Ostriches received at Galveston, Texas, from Port Natal, Africa, to be used for breeding purposes in California.

1234. *Save the Birds.* Editorial. *Ibid.*, No. 16, April 17, p. 361.—An appeal for the protection of birds.

1235. [*The Jardine Collection.*] *Ibid.*, No. 23, June 5, p. 535.—The collection of birds formed by the late Sir William Jardine to be sold at auction.

1236. *Birds of Plumage.* Editorial. *Ibid.*, No. 24, June 12, p. 533.—Noting a decrease in the demand for birds for millinery purposes.

1237. *The Fauna of Minnesota — Their Traverses and Routes of Migration.* By Charles Hallock. *Ibid.*, No. 25, June 19, p. 583.—Minnesota, intersected by lines of migration running north and south, east and west, considered to possess an unusually rich fauna.

1238. *The Mechanics of Soaring.* By I. Lancaster. *Ibid.*, No. 26, June 26, p. 607.—An attempt to explain, by mechanical laws, the soaring of birds.

1239. *The Drumming of the Ruffed Grouse.* By C. H. Prescott. *Ibid.* Vol. XXVI, No. 2, July 10, p. 31.

1240. [*The Messina Quail in Maine.*] By Frank Henshaw. *Ibid.*, No 2, July 10, p. 32.—One seen near Thorne's Corner, Maine.

1241. *Mallards Breeding in Confinement.* By A. A. Bogen. *Ibid.*, No. 3, July 17.

1242. *Habits of Southern Cranes.* By C. H. Wood. *Ibid.*, No. 8, Aug. 21, p. 175.—On the breeding of Herons at Moss Point, Miss.

1243. *The Wild Turkey—Its Domestication and Hybridization.* By John Dean Caton. *Ibid.*, No. 11, Sept. 11, p. 247.

1244. *They are to be Worn.* Editorial. *Ibid.*, No. 15, Oct. 9, p. 337.—Wings and tails of birds to be used on bonnets instead of whole birds.

1245. *Domestication of the Wild Turkey.* By W. C. A. (Greensborough, Ala.) *Ibid.*, No. 15, Oct. 9, p. 343.

1246. *Wild Ducks for Domestication.* By Junius P. Leach (Rushville, Ill.). *Ibid.*, No. 17, Oct. 23, p. 391.—A letter asking for assistance in procuring wild Ducks to domesticate.

1247. *Economic Ornithology.* *Ibid.*, No. 18, Oct. 30, p. 415.—On the work of the Division of Economic Ornithology, Dept. of Agriculture, in procuring data concerning the relations to man of *Passer domesticus* and *Dolichonyx oryzivorus.*

1248. [*Wild Pigeons.*] *Ibid.*, No. 18, Oct. 30, p. 415.—"Only two droves are known to exist in the United States today, one in Pennsylvania and one in Indian Territory."

1249. [*An Albino Nighthawk.*] By W. A. Strother. *Ibid.*, No. 18, Oct. 30, p. 415.—A perfect albino taken at Lynchburg, Va.

1250. *The Mocking Bird.* From the 'Macon, Ga., Telegraph.' *Ibid.*, No. 22, Nov. 27, p. 510.—Deploring its wanton destruction in the South.

1251. *Encysted Eggs in Birds.* By A. J. W. *Ibid.*, No. 22, Nov. 27, p. 510.—Passage of the egg from the oviduct being prevented, it is soon surrounded by membranes, and thus becomes firmly fixed at the point of detention. "Such a state of affairs will greatly disturb the physical economy of a bird, causing all the phenomena of fever and its debilitating effects."

1252. [*Explosion of an Egg.*] *Ibid.*, No. 22, Nov. 27, p. 510.—Dr.

George Bauer of Yale College knocked senseless by the explosion of a "fermented" Ostrich egg.

1253. [*Albino Quail.*] By G. V. Young. *Ibid.*, No. 26, Dec. 25. p. 608.

1254. *Mountain Grouse.* By Roxey Newton (Boise City, Idaho) *Ibid.*, No. 27, Dec. 31, p. 632.

1255. *Birds of Song and Plumage.* By Dr. Geo. Willis. *Ibid.*, No. 27, Dec. 21, p. 632.—On the destruction of birds for millinery purposes.

1256. [*A Golden Eagle at Lake Geneva, Wis.*] *Ibid.*, No. 27, Dec. 31, p. 632.

1257. [*Chinese Pheasants in California.*] *Ibid.*, Vol. XXVII, No. 3, Jan. 15, 1887, p. 56.—Two cocks and a hen imported by John C. Siegfried of Alameda, California.

1258. *The Golden-crowned Accentor.* By J. H. Langille. *Ibid.*, No. 4, Jan. 22, p. 80.—On the flight song of *Seiurus aurocapillus.*

1259. *The Food Habits of Birds.* *Ibid.*, No. 6, Feb. 5, p. 127.—Circular issued by Department of Economic Ornithology and Mammalogy, calling for information on the food of birds.

1260. [*Snowy Owls and Swans at South Haven, Michigan.*] By E. A. Lockwood. *Ibid.*, No. 6, Feb. 5, p. 128.—Ten Owls and two Swans taken in December.

1261. *The English Sparrow* (*Passer domesticus*). *Ibid.*, No. 7, Feb. 12, p. 153.—Circular issued by the Department of Economic Ornithology and Mammalogy, calling for information concerning *Passer domesticus.*

1262. *The Economic Relations of Mammals.* *Ibid.*, No. 8, Feb. 19, p. 176.—Circular issued by Department of Economic Ornithology and Mammalogy, calling for information on the habits of mammals.

1263. *The Food Habits of Birds.* By E. D. Lecompte. *Ibid.*, No. 9, Feb. 26, p. 200.—Replies to questions asked in the circular issued by Dr. Merriam (See No. 1259).

1264. *The Golden Pheasant.* By W. L. *Ibid.*, No. 8, Feb. 19, p. 176. —Circumstances concerning the introduction of the birds in Oregon.

1265. *The Habits of Snipes.* By A. Guthrie. *Ibid.*, No. 10, March 5, p. 224.—Snipe seen alighting in trees and on fences.

1266. *Hawks and Owls.* By Dr. A. K. Fisher, Ass't Ornithologist U. S. Department of Agriculture. *Ibid.*, No. 11, March 12, p. 246.—Deprecating the killing of Hawks and Owls under the mistaken idea that they are universally destructive to game and poultry.

1267. *Hawks and Owls.* By George Greene. *Ibid.*, No. 13, March 16, p. 296.—In reply to Dr. Fisher; Hawks considered destructive to Quails.

1268. *Hawks and Owls.* By W. C. A. [=W. C. Avery]. *Ibid.*, No. 16, April 16, p. 367.—Personal experiences, confirmatory of Dr. Fisher's statements. (See No. 1266.)

1269. [*An Albino Redwing Blackbird.*] By R. B. Morgan. *Ibid.*, No, 16, April 16, p. 367.—Entirely white except the shoulder patches, which are normal.

1270. *Foul Murder.* By C. D. Hess. *Ibid.*, No. 18, April 30, p. 424.—On the slaughter of Robins in the spring for the Baltimore markets.

1271. *Hawks and Owls.* By George Green. *Ibid.*, No. 21, May 12, p. 502.—Cooper's Hawk a Quail destroyer.

1272. *Crows and Chickens.* By George Green. *Ibid.*, No. 23, June 4, p. 551.—A Crow captures and flies away with a young chicken.

1273. *Sight and Smell.* By Charles Hallock. *Ibid.*, Vol. XXVIII, No. 1, July 2, 1887, p. 7.—On the sense of smell in Crows.

1274. *Sight and Smell.* By F. H. D. Vieth. *Ibid.*, No. 4, July 23, p. 78.—On the sense of smell in the Canada Jay.

1275. *The Senses of Sight and Smell.* By 'Birdo.' *Ibid.*, No. 5, July 30, p. 102.—On the sense of smell in Crows and Buzzards. (See also *Ibid.*, No. 10, Sept. 3, p. 223, and No. 16, Oct. 15, p. 367.)

1276. *The Senses of Sight and Smell.* By Charles Hallock. *Ibid.*, No. 7, Aug. 13, p. 150.—Sight considered of much greater importance to birds and mammals in procuring food, than the sense of smell, which the writer regards as an "auxiliary faculty" occupying "a decidedly secondary place to vision."

1277. *The Game Birds of Oregon.* By George Law. *Ibid.*, No. 8, Aug. 20, p. 174.—A popular account of some of the 'Game Birds' occurring in Oregon.

1278. *The Death of Professor Spencer F. Baird. Obituary. Ibid.*, No. 9, Aug. 27, p. 193.—(See also *Ibid.*, p. 223.)

1279. *The Senses of Sight and Smell.* By M. G. Ellzey, M.D. *Ibid.*, No. 9, Aug. 27, p. 199.—In reply to and agreeing with Mr. Charles Hallock. (See No. 1276.)

1280. *Vultures Discover Carrion by the Sense of Smell.* By W. C. A. [= W. C. Avery]. *Ibid.*, No. 12, Sept. 17, p. 269. (See also *Ibid.*, No. 14, Oct. 1, p. 318.)

1281. *The Grouse Family.* By W. B. *Ibid.*, No. 14, Oct. 1, p. 318. (See also *Ibid.*, No. 15, Oct. 8, pp. 343–344, No. 16, Oct. 15, p. 366, No. 17, Oct. 22, p. 391, No. 18, Oct. 29, p. 414.)—An extended paper on the American *Tetraonidæ*, written chiefly from a sportsman's standpoint, illustrated with several woodcuts, and containing much interesting biographical matter.

1282. *Unusual Nesting Sites.* By Walter E. Bryant. *Ibid.*, No. 17, Oct. 22, p. 392.—Notes from Nevada and California on twelve species of birds.

1283. *Marsh Game.* By James Norris. *Ibid.*, No. 19, Nov. 5, p. 438.—Notes on some of the game birds frequenting the marshes of the Chesapeake.

1284. *Foreign Game.* From the 'New York World.' *Ibid.*, No. 21, Nov. 19, p. 487.—On the game preserves in the vicinity of New York City and the nature and number of the birds with which they have recently been stocked.

1285. [*A Hybrid Duck.*] By F. L. C. *Ibid.*, No. 24, Dec. 10, p. 560.—*Anas boschas* + *Dafila acuta*.

1286. *The Strange Adventures of a Bob White.* By John A. Wells, M. D. *Ibid.*, No. 26, Dec. 24, p. 609.—An exceedingly interesting history of a Quail, which, captured and confined after it was fully grown, learned not only to recognize its master and dog captor, but even to evince a decided affection for both.—F. M. C.

Publications Received.—**Atkinson**, George F. Preliminary Catalogue of the Birds of North Carolina, with Notes on some of the Species. (Journ. Elisha Mitchell Sci. Soc. pt. 2, pp. 44-87.)

Bocage, B. du. Note sur la *Phæospiza thomensis.* (Jorn. Acad. real das Sci. de Lisboa, 1888, p. 192.)

Bocage, J. V. du. Sur un Oiseau nouveau de St. Thomé de la Fam. Fringillidæ (Ibid., pp. 148-150.)

Fisher, Wm. H. (1) The American Crossbill (*Loxia curvirostra minor*); as to some of its Habits and fondness for Salt. (Journ. Cincinnati Soc. Nat. Hist., Jan. 1886, pp. 203, 204.) (2) The Canada Grouse (*Dendragapus canadensis*). Some Remarks as to its Scarcity, Habits, etc. (Ibid., pp. 205, 206.)

Pelzeln, A. von, und Dr. L. von Lorenz. Typen der ornithologischen Sammlung des k. k. naturhistorischen Hofmuseums. IV Theil (Schluss). (Ann. des. k. k. naturhist. Hofmuseums, Bd. III, 1888, pp. 37-62.)

Reichenow, Ant. Bericht über die Leistungen in der Naturgeschichte der Vögel während des Jahres 1885. (Arch. für Naturgsch. 52 Jahr. Bd. II, pp. 145-232.)

Scott, W. E. D. Notes on Arizona Birds. New York, L. S. Foster. (Collection of 12 papers published in 'The Auk,' 1885-88.)

Shufeldt, R. W. On the Skeleton in the genus *Sturnella*, with osteological notes upon other North American Icteridæ, and the Corvidæ. (Journ. Anat and Phys. XXII, pp. 309-350, pll. xiv, xv.)

Souza, J. A. de. Enumeraçao das aves conhecidas da Ilha de S. Thomé sequida da lista das que ezistem d'esta ilha no Museu de Lisboa. (Jorn. de Acad. real das Sci. de Lisboa, 1888, pp. 151-159.)

Taylor, W. E. (1) The Migration of the American Magpie to Eastern Nebraska, Twenty-five years ago. (Am. Nat., Dec. 1887, pp. 1122, 1123. (2) Missouri River Crow Roosts. (Ibid., pp. 1123, 1124.)

Turner, L. M. Contributions to the Natural History of Alaska. 4to. Washington, 1886 (= 1888).

Agassiz Record, I, No. 3, 1888.

American Field, XXIX, Nos. 12-23, 1888.

American Journ. Sci., XXIV, Apr.-June, 1888.

American Naturalist, XXII, Mch.-Apr., 1888.

Audubon Magazine, II, Apr.-June, 1888.

Bay State Oölogist, I, Mch.-May, 1888.

Canadian Record of Science, III, No. 2, 1888.

Forest and Stream, XXX, Nos. 10-21, 1888.

Hoosier Naturalist, III, No. 3, May, 1888.

Naturalist, The, a Month. Journ. Nat. Hist. for North of England, Nos. 153-155, 1888.

Oölogists' Exchange, I, Apr., 1888.
Ornithologist and Oölogist, XIII, Nos. 4, 5, 1888.
Ornis, Jahr. III, Heft 4, Jahr. IV, Heft 1, 2, 1888.
Ottawa Naturalist, II, Nos. 1, 2, 1888.
Proceedings Acad. Nat. Sci. Phila., 1888, pt. 1, Jan.-Feb.
Proceedings Biol. Soc. Washington, IV, 1888.
Swiss Cross, III, Apr.-June, 1888.
Western Naturalist, II, Apr., 1888.
Zoologischen Anzeiger, Nos. 274-280, 1888.
Zoologist, XIII, Apr.-June, 1888.

GENERAL NOTES.

Occurrence of Larus marinus on the Southern Coast of New Jersey.—While on a ducking expedition at Atlantic City, N. J., I observed, during and after the 'blizzard' of last March (1888), three or four specimens of the Great Black-backed Gull soaring about as familiarly and with as wary impudence as is their wont in more northern latitudes.

Though unable to procure a specimen, I was assured by Capt. Sam. Gale of the same place that they were of yearly occurrence on that coast during winter, and that he had a standing offer from a local taxidermist of five dollars for every specimen taken, but that so far he had only procured one. So certain was I of my own identification, I did not think it necessary to verify it by personal examination of the specimen referred to. I am quite confident that Nuttall's extension of the winter range of this Gull to the "sea coasts of the extreme Southern States" is yet capable of verification as far south as the entire coast of Virginia. Indeed so storm-loving, erratic, and solitary a species as this, sets all petty limits at defiance, to the distraction of note-taker and book-maker alike; and, as soon as you have him booked for residence in Cape May, presto, the next cold wave wafts him to Cape Charles and you begin to understand how it got into print that *Larus marinus* "extends its residence in America as far as Paraguay!"*—Sam'l N. Rhoads, *Haddonfield, New Jersey.*

The Yellow-nosed Albatross (*Thalassogeron culminatus*).—In 'The Auk' for January, 1888, Mr. Montague Chamberlain of St. John, N. B., mentions his having seen the skin of this bird in the Laval University, Quebec. The bird in question was killed on the 20th of August, 1885, at the entrance of River Moisic, on the north shore of the St. Lawrence. It was shot by a fisherman named Couillard Després. I saw the bird a few days after it was shot, but could not identify the species. I sent a short description of it to Dr. C. H. Merriam.

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* Nuttall's Ornithology, Water Birds, p. 308.

While on the subject of rare visitors to the Gulf of St. Lawrence I will add that on the 13th and 14th of August, 1883, I saw a Man-of-war Bird, (*Tachypetes aquilus*) outside of the Bay here. A few days later it was again seen by Capt. Le Blanc of the 'Manicoriagan Light Ship,' thirty miles west of Godbout.—NAP. A. COMEAU, *Godbout, Quebec.*

Oidemia perspicillata in Florida.—A male of this species was taken January 23, near Punta Rassa, at the southern entrance to Charlotte Harbor.—FRANK M. CHAPMAN, *New York, N. Y.*

An Addition to the List of North American Birds.—I have in my collection two specimens, taken in Texas, of *Rallus longirostris caribæus* Ridg., heretofore only known in the West Indies. They are exactly like the type kindly sent me by Mr. Ridgway, and are undoubtedly referable to this form. A female was taken by Mr. Fred. Webster and myself at Galveston, Feb. 28, 1877, and a male was taken by my collector, Jno. M. Priour, at Corpus Christi, May 19, 1887.—GEORGE B. SENNETT, *Am. Mus. Nat. Hist., New York City.*

The Yellow Rail in Connecticut.—I am indebted to Mr. E. H. Austin of Gaylordsville, Conn., for a specimen of the Yellow Rail (*Porzana noveboracensis*) found at that place on March 24. Mr. Austin writes in reference to it: "It was picked up in the morning at the side of the road near the river by a boy who found it in an exhausted condition, and was taken into the house where it revived enough to run about the room, but finally died in the evening. The most singular point in my mind is that the Saturday it was found the thermometer stood at 10°, and the day before at 7°. It was taken into the Post Office as a rare or unknown bird."

It proved to be a male. I sent the contents of the gizzard to the Department of Agriculture, and Dr. A. K. Fisher says in a letter of the 30th inst.: "The seeds found in the gizzard of the Rail are as follows: one grape seed, one grass seed (*Paspalum*), two sedges (*Carex*). Probably the grape seed was taken in with gravel."

Mr. Austin has recorded his discovery in 'Forest and Stream.'—C. K. AVERILL, JR., *Bridgeport, Conn.*

Notes on Melanerpes torquatus.—During the springs of 1885, 1886, and 1887, I made constant observations upon the migration of birds at Fort Wingate, New Mexico, but during those three years never so much as observed anywhere in that region a specimen of Lewis's Woodpecker (*M. torquatus*); nor, as for that matter, at any other time during the year. This spring (1888), however, my son noted a bird of this species in a large pine tree close to the garrison buildings, and when I was out next day (May 8), four other specimens were in sight at one time, within two miles of the station. These, as usual, were extremely wary, and I only succeeded in obtaining one fine adult female.

Upon carefully plucking this bird, I found the pterylosis to be for the most part typically Picine in character, though we are to note that the sub-median longitudinal capital apterium is but barely discernible, while I utterly failed to detect the presence of any naked temporal spaces whatever. In these particulars, *M. torquatus* nearly agrees with *Sphyrapicus.* The uropygial papilla is tufted, but the glands lying beneath the skin are small and elongated.

After having removed the integuments, it is seen that the free extremities of the limbs of the hyoid extend only as far forward as the middle of the parietal region, or the vault of the cranium; otherwise the lingual apparatus of this species seems to be as we find it in other Woodpeckers. It has a markedly small heart for the size of the bird, and the tissue of the liver is of a very friable nature. The gizzard is large and muscular, its periphery being raised into bounding muscular ridges, and the *musculi intermedii* very prominent. Making a section through it, I find a firm, rugose, horny lining, and its contents consisting of a quantity of small-sized hard-winged beetles, of a species unknown to me. Intestinal cœca are absent, and the intestinal tract, for its lower part, is of a very large calibre. Even at this time of the year, the ovaries in this specimen are small, the largest ova being no bigger than No. 4 shot. An account of the skeleton of this species will be given by the writer in another connection, when it will be fully compared with the skeletons of other North American species of the same group. — R. W. Shufeldt, *Fort Wingate, New Mexico.*

Early nesting of Octocoris alpestris praticola.—March 26, 1888, while returning from a trip after Crossbills, I flushed a female Horned Lark within one hundred feet of where I found my first nest last season (April 11, 1887), and as she acted as they usually do when nesting, out of curiosity I began to search, and was rewarded by finding the nest, a mere cavity in the side of a sandy knoll, lined with dead grasses, a little thistle down, and a few mayweed blossoms. The eggs had been incubated a few days. On the 21st, 22d, and 23d the thermometer ranged in the vicinity of zero, and in fact the spring has been very backward. When you approach the nest, *usually* the female sneaks from two to three rods before flying, then flies to a short distance, observes you closely, begins to pick on the ground, and then flies to a distant part of the field to be joined by her mate. Occasionally a female will hover for a moment over you, if you are close to the nest, but they vary so in actions that it is hard to describe the different peculiarities.

Since the above I have taken other sets. April 3, three nests of three eggs each in stubble fields on knolls. April 4, one set of four eggs, much incubated, in oat stubble. April 6, set of four fresh eggs in stubble, and the same day a nest with one young fledgling, which I should judge to have been two or three days old, on the side of a knoll in a newly seeded meadow. The young bird was about a foot outside of the nest, and very cold, but alive, for which I cannot account as the old birds were flushed about a rod from the nest. April 7, nest of four nearly fresh eggs, in oat stubble as usual, on the side of a knoll. I find these birds breeding as late as June in favorable localities, "barren fields with not much if any herbage in them," which shows they must at least raise two broods annually. Before nesting the male is very active, singing from early morning until late evening, both on the ground and high up in the air. But as soon as the female begins her incubation he becomes silent, and keeps in a distant part of the field to warn her, as I often have seen him do, by flying close to her in the nest, *but not alighting*, soon to be followed by her and chased around as when mating.

Where early in the season you saw dozens of pairs singing, you will be surprised at the quietness now. But after beating about the field you will begin to disturb them, and will find as many birds as formerly.—GEO. E. HARRIS, *Buffalo, N. Y.*

Pine Grosbeak in Fulton Co., Kentucky.—The Evening Grosbeak has not appeared this winter as yet, but he has been replaced by the Pine Grosbeak (*Pinicola enucleator*), a flock of which, numbering eight or ten individuals, mostly females, appeared Feb. 7, 1888. O the 8th, 11th and 13th they were again seen, and on the 24th Mr. T. L. M'Cutchen who collected some for me in 1887, secured four specimens, one male and three females, but I was away from home, and he, not knowing the bird, did not keep them. On seeing me he gave me an excellent description of them and said he had shot, but not secured, a female on the 25th. Three or four females were seen yesterday, March 19 —L. O. PINDAR, *Hickman, Ky.*

Occurrence of the Chestnut-collared Longspur (*Calcarius ornatus*) and also of Maccown's Longspur (*Rhyncophanes maccownii*) in Apache Co., Arizona.—During the winter of 1887-88, I had several times noticed a small flock of birds which I did not know, about a mile west of the town of St. Johns, the county seat of this county (Apache), but as I usually had only a rifle or six-shooter I was unable to obtain a specimen for identification. About the 8th of March, however, my friend Mr. E. W. Nelson stated that he had lately obtained several specimens of the Chestnut-collared Longspur and showed me several. I at once guessed that the unknown birds I had seen were of the same species, and next time I came in to St. Johns, on the 10th of March, I brought my shot-gun. On my way out I saw the little flock, and was fortunate enough to procure four specimens which I packed up and took out to the ranch. I skinned three which were all *C. ornatus*, but on taking up the fourth I was at once struck by the greater size, heavier beak, bay on the wing-coverts, and black cap of the specimen in my hand. I looked it up and found it was undoubtedly *Rhyncophanes maccownii*. Next day I shot a second specimen about twenty miles southwest of St. Johns, also two more of *C. ornatus*. I showed this specimen to Mr. Nelson on March 14 and he agreed with me as to the species. On the same day about a mile west of St. Johns I found a large flock of *R. maccownii*, and shot eleven more specimens. At first during the winter there was only a small flock of *C. ornatus* to be seen with probably a few of *R. maccownii* scattered among them, but on March 14 *C. ornatus* was scattered all over the country west of St. Johns, and where I killed the eleven specimens of *R. maccownii* there was a flock of about 1000 *C. ornatus*. There were about 500 of *R. maccownii* in the flock out of which I got specimens and the two species seemed then to be separate. The nature of the country where I found both species was very barren, there was only a little short white gramma grass and a few weeds. Two of the specimens of *R. maccownii* I found on skinning had peculiar parasitical worms coiled up in the lower outer corner of the eye space; one had five and the other two of these worms. They were about .75 of an inch long and about a thick as a stout piece of sewing cotton, and of a bright yellow color. In both species of birds the males predominated, thus of thirteen *R. maccownii* but one was a female. Of eight *C. ornatus* but one was a female. This is the first time I have seen either species in this district, and as Dr. Coues in his Key to North American Birds, and also the A. O. U. Code and Check list mention both birds as rare west of the Rockies, I send this notice to 'The Auk.'—JOHN SWINBURNE, *St. Johns, Apache Co., Arizona.*

Euetheia canora from Sombrero Key, Florida.—A Bird new to the United States.—Mr. M. E. Spencer, keeper of the light at Sombrero Key, Fla., has just sent me a package of birds which killed themselves against his light during the past spring migration. Among them was a pair of short olive green wings which I was unable to identify. On submitting them to Mr. Ridgway, he at once pronounced them to belong to a species of *Euetheia*, and comparison with specimens in the collection of the U. S. National Museum showed the species to be *E. canora*, the Melodious Grassquit, hitherto known only from Cuba. The bird was found dead on the lower platform of the light-tower on the morning of April 17, 1888. The wind was east, moderate; sky cloudy.

Another West Indian bird is thus added to the list of those known to occur on the islands and coast of southern Florida.—C. HART MERRIAM, *Washington, D. C.*

An Abnormal Scarlet Tanager.—A remarkable albino female Scarlet Tanager was procured at Germantown, May 8, 1888, and is now in my collection. The wings and tail are composed of pure white and ordinary blackish feathers in about equal proportions, while the wing-coverts consist of white, olive and canary-yellow feathers. All the rest of the plumage above and below is bright canary yellow, with one or two olivaceous feathers in the middle of the back. The legs and bill are very light pink. The bird was in company with several normal birds of the same species.—WITMER STONE, *Germantown, Pa.*

Prothonotary Warbler in Ontario. — While collecting Warblers near Hamilton on the morning of the 23d of May, 1888, I met a group which had evidently just arrived from some favored point in the South, their plumage being particularly fresh and bright, and such rare species as the Mourning and Connecticut Warblers and the Green Blackcap being conspicuous. Presently I noticed one on a willow overhanging the water, which seemed to be a compromise between the Summer Yellow Bird and the Yellow-throated Vireo. On picking it up I was greatly pleased to find I had got a specimen of the Prothonotary Warbler—a female in the ordinary plumage of the season. It is the first record of the species for Ontario and the second for Canada, the first being that of a specimen which was found at St. Stephens, New Brunswick, by Mr. Boardman in October, 1862.—K. C. McIlwraith, *Hamilton, Ontario.*

Bachman's Warbler (*Helminthophila bachmani*) **in Louisiana.**—During March, 1888, I collected thirty-one Bachman's Warblers on the borders of Lake Pontchartrain, Louisiana. They were probably more abundant than in 1887, as about the same effort was made last year to secure them, by at least a dozen hunters, commencing earlier and continuing later in the season, with the result of but six specimens. It is somewhat remarkable that of the six secured in the spring of 1887 four were females while among the thirty-one killed this year there were not any females.

This bird, so long unsuccessfully sought for, is evidently a stranger to the forests of Louisiana except during the migration, for those taken this season were killed between the 2d and 20th of March, and although they were diligently sought for up to the middle of April no specimens were obtained later than the end of March, showing pretty clearly that the breeding place is farther north.

No sound was heard from them except in the case of two of the finest, which were so low down on the tree on which they were discovered, that their plumage was easily distinguished; my assistant reported that the shooting of the first failed to disturb the second one, which remained on the tree and uttered a chirping note as if calling to its dead companion. Nearly, or quite all the other specimens obtained were found in the company of a variety of other early Warblers in the tops of the sweet-gum, probably attracted by insects found in the buds and blossoms of this tree.

Of the Swainson's Warblers (*Helinaia swainsoni*),I secured but three specimens this year, against nine in 1887, and about forty in the spring of 1886. Although these birds do not arrive in Louisiana until about the middle of March, it is quite probable that many of them remain and breed in this latitude.—C. S. Galbraith, *West Hoboken, N. J.*

Helminthophila celata in Connecticut.—May 8, 1888, I shot a male bird of this species. It was in company with Nashville Warblers when killed. As far as I can ascertain this is the only specimen actually taken in Connecticut, although it has been observed close by the Connecticut line in New York.—Willard E. Treat, *East Hartford, Conn.*

Dendroica cærulea in the District of Columbia.—On May 5, 1888, I had the pleasure of adding *Dendroica cærulea* to the fauna of the Dsitrict of

Columbia, by the capture of a single male shot on Rock Creek. Mr. P. L. Jouy some years ago reported having seen what he supposed to be a specimen of this bird, but this is the first time the species has been actually taken.—EDWIN M. HASBROUCK, *Washington, D. C.*

Seiurus noveboracensis notabilis in South Carolina.—The rapidly increasing list of birds essentially Western, occurring in South Carolina, is further augmented by the capture of an adult male Grinnell's Water Thrush, by the writer, near Chester C. H., April 28, 1888.—LEVERETT M. LOOMIS, *Chester, S. C.*

Two Records for Long Island, New York. — *Dendroica palmarum.* — I secured a female at Montauk Point, Sept. 7, 1885. This antedates by over two years the one recorded by Mr. William Dutcher as the first obtained on Long Island (Auk, Vol. V, April, 1888, p. 182). My bird was with a small flock, and at the time I did not suspect its identity.

Polioptila cærulea.—I shot a male at Montauk Point, Sept. 2, 1885. It was in one of the dense thickets common to that locality, and not in company with any other birds. This is, I believe, the third record for Long Island, the first specimen having been taken by Mr. N. T. Lawrence (Auk, II, July, 1885, p. 272) and the second by Mr. de L. Berier (Bull. N. O. C., VI, April, 1881, p. 126). Up to the present writing I know of no other captures of this species on Long Island, although the list of records for New England is now a large one. — JONATHAN DWIGHT, JR., *New York City.*

Birds at Aiken, S. C.—The notes below recorded were made at Aiken, South Carolina, in November, 1887.

A female *Quiscalus quiscula æneus*, taken on the 24th, and a single true *quiscula* on the 12th, were the only Grackles observed.

On the morning of the 12th, a flock of about fifty Crossbills (*Loxia curvirostra minor*) swept past me, almost within gunshot, half of them pausing for a moment in the top of a pine near by, then hurrying on to join those in advance, when they were soon and finally lost to view.

A male of the year of *Vireo solitarius alticola*, was taken November 11.

Thryothorus bewickii was taken on November 9 and 25, a specimen each day, the only ones observed.—FRANK M. CHAPMAN, *New York, City.*

Notes on Louisiana Birds.—Mr. C. S. Galbraith, of Hoboken, N. J., has kindly allowed me to examine a small collection of birds obtained by him at Mandeville, La., during the winter of 1887-88, in which I find a few species of special interest on account of the locality of capture. Among these are the Florida Barred Owl (*Syrnium nebulosum alleni*), the Florida Screech Owl (*Megascops asio floridana*), the Florida Blue Jay (*Cyanocitta cristata florincola*), the Purple and Bronzed Grackles (*Quiscalus quiscula* and *Q. q. æneus*, both typical), and the Cerulean Warbler

(*Dendroica cærulea*). Also several specimens of Swainson's Warbler, and a large series of Bachman's Warbler, as already recorded by Mr. Galbraith in the present number of 'The Auk.' Of special interest also is a pair of Crossbills (*Loxia curvirostra minor*), taken March 27, 1888; they are much smaller than northern birds of the same species, and the male is of a darker red. They were probably bred in the mountains or tablelands of Kentucky or Tennessee.

Mr. Galbraith informs me that Pine Finches and Juncos were rather common winter residents at the locality in question.

His collection contained also a Brown Thrush with a malformed bill, in which the bill is slender, lengthened, and curved to the right, with the upper mandible twisted partially beneath the lower, which is considerably longer than the upper. A Yellow-bellied Woodpecker presents a somewhat similar malformation, the mandibles being crossed near the base, and the lower one attenuated and greatly lengthened.

A beautiful albino Prothonotary Warbler (*Protonotaria citrea*) is also worthy of mention. The yellow is of normal extent and intensity, but the gray is entirely replaced by pure white. The wings and tail are thus pure white and the body deep intense yellow, the olive of the back being replaced with yellow. The specimen thus looks very much like a white-winged yellow Canary with a Prothonotary's bill.

All the birds above-mentioned, except the greater part of the Bachman's Warblers, have been purchased for the American Museum of Natural History.—J. A. ALLEN, *Am. Mus. Nat. Hist., New York City.*

Observations on Bird Migration at Milwaukee.—The Milwaukee Exposition Building occupies one square, between 5th and 6th Streets east and west, and State and Cedar Streets north and south. The building is located about one mile west from the Lake shore, and nearly in the centre of the city north and south. The main tower of the building is nearly in the centre of the structure, and rises over 200 feet above the street. During the Exposition this tower is illuminated by four electric lights of 2000 candle power each. They are lighted from 6 to 6.30 P. M. and turned out at 11 to 11.30 P. M., according to the condition of the atmosphere.

The weather previous to September 20-21 was exceptionally mild and pleasant, and but few birds were noticed migrating, *i. e.*, during the day time. I had not yet discovered that the electric lights on the tower attracted the birds to any extent. September 21-22 it grew suddenly cooler with raw cold north wind. On the morning of the 22d some of the employes of the Exposition climbed to the tower and found "lots of birds" dead. I procured a few of them, the rest becoming scattered before I had found it out. Of this lot there were no species of those I saw, not represented in my list of the next day except *Colaptes auratus* which I identified from some feathers a young lady had saved from the specimen.

The night of September 22-23 was raw and cold, with fresh north wind, and was very dark. The next morning I found the following species around the lights and on the accessible roofs.

	Adult.	Juv.
Setophaga ruticilla	1 ♀	4
Geothlypis trichas	1 ♀	3
Geothlypis agilis		6
Mniotilta varia		1 ♂
Compsothlypis americana		1 ♀
Helminthophila peregrina	1	5
Helminthophila ruficapilla		1
Dendroica castanea		4
Dendroica blackburniæ		1 ♂
Dendroica coronata		2
Dendroica vigorsii		1 ♂
Dendroica palmarum		5
Dendroica maculosa		3
Dendroica cærulescens		1
Dendroica virens		2
Seiurus aurocapillus		4
Seiurus noveboracensis		3
Troglodytes aëdon*		1
Regulus satrapa		1
Melospiza fasciata		1
Ammodramus sandwichensis savanna		1

This list comprises only such species as were procured and examined. I estimate that fully double this number of birds was scattered about on the different roofs in sight from the dome but not accessible without considerable risk and much trouble in procuring ladders, etc. They were too far away to identify with certainty, and most of them rolled down the roofs into the troughs, or to the ground, and were lost.

The night of September 23-24 was much like the preceding, but somewhat colder and less windy. On the morning of the 24th I procured the following species. These were not all killed on the night of September 23-24, however, as some of them that were found in the eave troughs had probably been killed one or two days previous.

Geothlypis agilis	3	juv.
Geothlypis trichas	3	"
Setophaga ruticilla	2	"
Dendroica palmarum	1	"
Dendroica castanea	4	"
Dendroica maculosa	2	"
Dendroica pennsylvanica	1	"
Dendroica vigorsii	1 ♂	"
Dendroica cærulescens	1 ♀	ad.
Dendroica striata	3	juv.
Helminthophila peregrina	4	"

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*Flew in at main entrance to Exposition building about 9.30 P. M. and was caught. It is said there were others with it.

Vireo olivaceus[*]	4		juv.
Vireo gilvus	1		"
Seiurus auricapillus	1		"
Seiurus noveboracensis	1		"
Melospiza georgiana	1		"
Habia ludoviciana[†]	2	(♂ and ♀)	"
Piranga erythromelas	2	(♂ and ♀)	"
Turdus aonalaschkæ pallasii	2		"

September 24 was a very pleasant day with light northwest wind. The wind freshened in the evening, and many birds were noticed about the dome from 7 P. M. until 10.30 P. M. I did not go up during the evening but some of the small boys employed about the building did, and as I was afterwards informed secured a "market-basket full of birds." I did not see any of these. I climbed the tower early the next morning and was surprised not to find any birds until I found out the boys had preceded me.

The 26th being Sunday, no lights were lighted. Weather mild and fair with light southerly winds. On the evening of the 27th I went up on the tower, but the weather was too boisterous. There was a cold rain with high wind. Very few birds were seen, mostly Thrushes and one small flock of *Tringæ*. The birds merely circled around the tower once or twice, and passed on. I heard Gallinules, Rails, and Night Herons, but they did not approach the lights. The 28th it rained very hard, and as I could see no birds from below I did not go up. None were found dead next morning.

The 29th was rainy with high north wind. I went up on the tower about 8 P. M. The weather was unfavorable; I saw a few Thrushes, one Robin, and some small Sparrows, but they merely flew near the lights, sheered off, and passed on. None were found dead next morning.

On account of the exposure to wind and rain for two nights on the tower I got an attack of rheumatism and was unable to make any further observations until the birds had passed south.

Besides the species enumerated in the above lists I saw and heard the following, some from the street and some on the tower:

Totanus, either *melanoleucus* or *flavipes*, straggling flocks, quite noisy. Noticed several evenings, but did not approach very close to the lights.

Two or three loose flocks of small *Tringæ* circled rapidly around the lights a few times, and disappeared in the darkness. A flock of small Plovers, probably *Æ. semipalmata*, acted much the same way, but appeared to be lost and would wander away out of sight, soon return, pass close by the lights and after a few minutes return and go through the same manœuvre.

Thrushes were noticed frequently, especially on the 27th and 28th. At times there were eight or ten flying aimlessly around the lights, but never going very close, nor flying directly at the lights as most of the Warblers did. I could not identify the species, but think most of them were *pallasii.* I saw one young Robin, but he soon bent his course downwards to some shade tree where I have no doubt he found a roosting place.

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[*] One of these was minus both wings.

[†] Female was minus both wings and tail.

Carolina (?) Rails were frequently heard, especially on the 21st, 22d, and 23d; they seemed to be flying on a lower level than the dome, barely above the housetops. None were seen around the tower. The same remarks apply to the Florida Gallinule. Night Herons (*N. nycticorax nævius*) and some other Herons that I think were *Botaurus lentiginosus* passed frequently from the 22d to the 26th. They did not seem to be attracted by the lights and appeared to be flying considerably higher than the dome, I should think at least 100 feet or more. English Snipe were noticed a few times, but only flew rapidly by. This was one of the few species I observed that were flying in the normal manner.

Small Sparrows that looked like *Melospiza georgiana* were frequently noticed, but the species could not be determined with certainty. They arrived singly, and came from a lower level than the lights on the tower, and in passing by always directed their course downwards, as far as I was able to see them in the darkness.

One feature that especially interested me was that nearly all the birds I observed had a peculiar dragging flight like a bird wounded through the intestines; it reminded me forcibly of the peculiar flight of the male *Icteria virens* during nesting time. Any ornithologist who has observed this will recall the unnatural flight, the wings are raised high, tail dropped low and head raised, so that the body instead of being carried nearly horizontally is at a considerable slope. The first impression suggested was of extreme fatigue, but it is probable the birds are better able to sustain continued flight by flying in this manner with the wind.

Another interesting fact is that among the forty odd species and many times that number of specimens I only detected four adult birds.

Apparently most of the birds were killed by coming into contact with the electric wires, as there was not a bruise nor hardly a ruffled feather on them. Some had flown against the lights and broken or bruised their bills, others had torn the skin or feathers from the side of the head or throat, and in two instances the wings were gone. Two or three had their necks broken.

I estimate the number procured at about fifty per cent of those killed. A large number fell on inaccessible roofs, or were blown into the eave troughs during the high winds and lost.—LUDWIG KUMLIEN, *Milwaukee, Wisconsin.*

Osteological Notes upon Puffins and Ravens.—In examining some skeletons of adult specimens of *Lunda cirrhata*, kindly loaned me by the Smithsonian Institution, I find, occupying the usual site of the bone, but completely enveloped by the tarsal theca, a rudimentary accessory metatarsal, or the hallux metatarsal, which is freely articulated, but all evidence of a basal phalanx of the toe is absent. Such a rudimentary element in the skeleton of a bird is an interesting fact, and it sees its counterpart in the rudimentary limbs in such a lizard as *Ophisaurus ventralis*.

While engaged upon dissecting the eyes of adult Ravens (*Corvus corax sinuatus*), I have always found a firm osseous plate, of an elliptical outline, with a major axis of some 5 or 6 millimetres surrounding the entrance of the optic nerve, on the outer coat of the eye. In a 'Bulletin' which I have in the hands of the Smithsonian Institution for publication, I figure this structure, as well as the rudimentary metatarsal bone, to which I have alluded above. — R. W. Shufeldt, *Fort Wingate, New Mexico*.

Abnormalities in the Ribs of Birds.—Those who have examined many series of skeletons are well aware that the number of ribs in any given species is liable to vary, and that an animal may possess a pair more than the normal number for the species, or that in exceptional cases a pair may be wanting.

The additional pair of ribs usually appears on the first lumbar vetebra, or what would normally be the first, although now and then a short, styliform pair of pleurapophyses may be present on the seventh vetebra of mammals, or in fishes on the ex-occipitals.

The greater number of segments in the vertebral column, and the more generalized the animal, the greater seems the tendency to variation, and in the Urodele Batrachia even the number of dorsal vertebræ is extremely inconstant.

The following list of costal abnormalities, noted in a comparatively small number of skeletons, would seem to show that in birds the rib element is subject to frequent variations.

Galeoscoptes carolinensis with but five pairs of complete ribs, instead of the normal passerine number of six, the abnormality being caused by the lack of a hæmapophysis on the rib attached to the fifteenth vertebra. The styliform rib on the fourteenth vertebra was also reduced in size.

Galeoscoptes carolinensis with seven pairs of ribs, a hæmapophysis connecting the ordinarily free rib of the fourteenth vertebra with the sternum.

Melanoptila glabrirostris and *Clivicola riparia*, each with a seventh pair of ribs with attached hæmapophyses on the second vertebra of the 'sacrum.'

Quiscalus purpureus and *Sturnella magna neglecta*, each with an additional pair of short slender ribs, devoid of hæmapophyses, on the second vertebra of the 'sacrum.' This is a rather curious coincidence, as the two birds are presumably nearly related. It is the more interesting from the fact that among birds the dorsal portion of the rib is the first to be suppressed, and instances are numerous—as among Raptores—where a pair of hæmapophyses is normally present without the slightest trace of corresponding pleurapophyses. An intermediate condition is found in some birds, *e. g.*, *Trochilus colubris* and *Cypselus apus*—a complete hæmapophysis supporting a pleurapophysis whose upper moiety is lacking.

Examination of the large series of sacra of *Alca impennis* in the collection of the U. S. National Museum shows that in this bird an extra (ninth) pair of ribs was not infrequently present on the second 'sacral' vertebra. At some future day I hope to ascertain in what percentage of Great Auks this condition prevailed, but the most interesting fact is that when the additional pair of ribs is present there is usually at the same time a small parapophysis developed on the first true sacral vertebra, as if the rib-creating force had been felt still further down the line of vertebræ.

These abnormalities have been mentioned, as they seem to have a bearing on the reduction in the number of vertebræ which Baur, Balfour and Parker have shown has taken place among birds, and they may probably be regarded as the reappearances of ribs once normally present in the ancestral types of existing birds.—FREDERIC A. LUCAS, *Washington, D. C.*

CORRESPONDENCE.

[*Correspondents are requested to write briefly and to the point. No attention will be paid to anonymous communications.*]

The Sternum in the Solitary Sandpiper, and other Notes.

TO THE EDITORS OF THE AUK:—

Dear Sirs: Some little time ago, while looking over several skeletons of the Solitary Sandpiper (*Totanus solitarius* of the A. O. U check list), which I have in my private collection, I noticed that the sternum of this bird has but a single large notch on either side. Now the only two other allied species in our avifauna, so far as is known to me at present, thus constituted, are the Woodcock and Wilson's Snipe (*Gallinago delicata*), and I am uncertain about the genus *Macrorhamphus*, as I have not, as yet, looked up the point in the species therein contained. Possibly, too, *Totanus ochropus* may possess a sternum with but a pair of notches in it, and if that be the case, I am of the opinion that the character is very likely to be associated with other distinguishing points in the economy of these two birds, of ample importance, I think, to guarantee us in restoring for their reception, the genus *Rhyacophilus*, which change I propose in the present connection. Such forms as *Totanus flavipes* and *T. melanoleucus* have the usual *four-notched* sternum, as is the general rule among Limicoline birds.

To furnish certain comparative notes on this point, we find that Sir Richard Owen, in speaking of the sternum as it is found in certain birds of this order, says, in the second volume of his 'Comparative Anatomy and Physiology of Vertebrates,' on page 26, that "the woodcock (*Scolopax*) has a pair of notches, with the outer boundary slender, and shorter than the broad intermediate tract, the gambets (*Totanus*), avocets, sandpipers (*Tringa*), curlews (*Numenius*), pratincoles (*Glareola*), have the four-notched sternum. In the godwits (*Limosa*, *Helias*) the medial notches are almost obsolete, and the lateral ones wide. The 'thick-knees' (*Œdicnemus*) and bustards (*Otis*) have the four-notched sternum, the notches being small."

A number of years ago I published in the 'Journal of Anatomy' in London, with plates, a memoir having much to do with the osteology of our American Limicolæ, wherein I was enabled to confirm Professor Owen's observations, and extend them by noting the 'four-notched sternum' in our own species of *Limosa*, in two species of Oyster-catcher, in *Totanus flavipes*, in several species of true Sandpipers, and in the genus *Bartramia*, where I found "a small pair of inner notches in the sternum, with very deep outer ones." I further went on to remark, as I have already stated above, that I had only found the 'two-notched' sternum in the Snipe (*Gallinago delicata*) of the American Limicolæ that I examined on that occasion. Since then, as I say, I have found a similar form of the bone in our own Woodcock (*Philohela minor*). Among taxonomists, the notching of the sternum has always carried with it more or less weight in deciding avian affinities, and I was promptly held up for my sins, for having published somewhere about a year ago, that I did not attach much weight to this character, as applied to the sterna of certain Auks, where the bone in the *same species* could be found to have a pair of notches, or a notch only on one side, or an absolutely notchless sternum. As we come among the higher groups of birds, however, this character becomes, as it were, more fixed, and the bone for any number of individuals of the same species, very much alike, and certainly the "notching" the same. So constant is the character that, for instance, I doubt very much that any one yet has discovered a sternum from a specimen of *G. delicata* with more than a pair of notches in it, while on the other hand no one can with certainty predict what the pattern of the xiphoidal margin of the sternum will be in a specimen of *Uria lomvia* before cutting down upon it for examination. Professor Owen figured the sternum of the now-supposed extinct Great Auk (*P. impennis*) with the posterior border *entire* to the bone in question. Whereas in specimens recently obtained by Mr. F. A. Lucas, the sterna show a pair of notches in many instances.

Osteologically, the gap between such genera as *Gallinago* and *Philohela*, and the genus *Tringa*, for instance, is a wide one, for not only is the sternum "two-notched" in the first mentioned genera, and "four-notched" in *Tringa*, but the remaining bones of the skeletons of the compared forms are also totally different, and thus bear out the dissimilarity of structure suggested by the sterna. Presumably, too, were the 'soft parts' also carefully compared, they likewise would support these differences. Having arrived, however, at the genus *Tringa*, and passing up through the order Limicolæ, as we group our birds in the A. O. U. Check List, we find the "four-notched" sternum a very constant character through it, and through the succeeding genera of *Ereunetes*, *Calidris*, *Limosa*, and, as I say, in such forms of *Totanus* as *T. melanoleucus* and *flavipes*, until we come to the really notable departure in this particular as found in the sternum of the Sandpiper which is the subject of this letter.*

If you will kindly grant me a few more lines of your valuable space, I would like to add here a few supplemental notes in reference to the pterylography of the genus *Sphyrapicus*. It will be remembered that in the April (1888) issue of 'The Auk,' I figured this character for a Woodpecker of that genus, and showed how the 'saddle-tract' resembled that pteryla in most Passeres. This was perfectly true for all the examples then at my command, but since then considerable more material has come under my observation, and in some individuals of *Sphyrapicus v. nuchalis*, I find the pattern of the dorsal tracts in their pterylography, quite Picine in character, while several individuals prettily show intermediate steps approaching the pattern of the specimen I figured in my former letter on this point, alluded to above. In a letter of mine published in 'The Auk' in July, 1887, I showed how widely different in form the skulls of two birds of the same species might be, and I am now inclined to think that similar departures may occasionally be met with, where the pterylography may vary within certain limits for the same species. This would appear to be the case anyway in the Woodpecker about which I have been speaking.

Very respectfully yours,

R. W. SHUFELDT.

Fort Wingate, New Mexico,
March 27, 1888.

NOTES AND NEWS.

HENRY JAMES STOVIN PRYER, a corresponding member of the American Ornithologists' Union, died in Yokohama, Japan, where he has resided for many years, on February 17, 1888, from bronchial pneumonia. He was born in London, near Finsbury Square, June 10, 1850, the youngest son of Thomas Pryer, a London solicitor. He went to China in 1871, but shortly after he settled in Japan, where he engaged in mercantile business, devoting all his spare time to collecting natural history objects and to studying the butterflies and birds of that country.

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* Since writing the above, I have received a valued communication from Mr. J. A. Allen, who has kindly looked into this matter for me, and reports that he finds the "two-notched" sternum in *Totanus ochropus*. I further learn that the sternum of this species is figured in Mr. Seebohm's recent work on the 'Charadriidæ,' but note with surprise that he makes so light of such an admirable generic character. This convinces me more than ever, that the genus *Rhyacophilus* should be restored.—R. W. S.

To ornithologists he is best known as Capt. Blakiston's collaborator in the various annotated lists of Japanese birds published in 'The Ibis' and the 'Transactions' of the Asiatic Society of Japan between the years 1878 and 1882, Mr. Pryer chiefly contributing the notes and the material relating to the birds of the Middle Island, while Capt. Blakiston furnished the data from the North Island. These publications mark a great advance in Japanese ornithology, and justly serve as the basis for all future investigations.

In the prosecution of his ornithological and other researches, Mr. Pryer visited the Bonin and Liu Kiu Islands, bringing home from the latter several new and highly interesting species which have been described by Mr. Seebohm. During a visit to Northeast Borneo he explored the famous caves of Gomanton, where he procured specimens of the edible birds'-nests and of the Swiftlets themselves (*Collocalia fuciphaga*), and in a most interesting paper, published in the P. Z. S., 1884, pp. 532-538, * related his experiences there, and explained the mode of construction and composition of these nests (see also below).

At one time he gave up business for an appointment under the Japanese government, and superintended the arrangement of the zoölogical collection in the museum of the Education Department. While in that service he travelled about in the southern part of the country attended by native assistants collecting for that institution. He soon returned to mercantile business again, and to private collecting and study; but he was always ready to afford assistance and advice to his former employers, and the success which attended the National Museum, as well as the one he had been instrumental in setting on foot in the zoölogical way, is no doubt much due to his aid.

A friend, to whom we owe much of the information embodied in the above sketch of Mr. Pryer's career, describes him as being of a wiry nature, capable of withstanding fatigue and excessive heat, though not robust, and as to his other qualities our correspondent quotes the following from the 'Japan Daily Mail' of February 20: — "Mr. Pryer had earned no small distinction as a naturalist. Earnest and unassuming, he cultivated knowledge for its own sake, and in the comparative retirement which he courted for the better pursuit of his work, he never lost the geniality and gentle kindness so often found in loving students of nature."

In recognition of his meritorious work as a zoölogist in Japan, Mr. Pryer was elected a member of the Entomological Society of London in 1867, a corresponding member of the Zoölogical Society, London, in 1878, and of the American Ornithologists' Union in 1883.

Mr. Pryer's name will always be honorably associated with the history of Japanese ornithology, and his death is a great loss to those who were specially engaged in that branch and who had the good fortune to profit by his correspondence.—L. S.

Another corresponding member of the A. O. U. has recently passed away, viz. Dr. Modest N. Bogdanow, who on March 4-16, died in St.

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* A short abstract is to be found in the 'Standard Natural History,' IV, p. 438.

Petersburg only forty-seven years old. He was a Professor Ordinarius of Zoölogy at the Imperial University in St. Petersburg, and a curator of the Zoölogical museum of the Imperial Academy of Sciences in that city.

From 1867 he has been a very prolific writer, and gained for himself an enviable reputation as a bright and painstaking ornithologist. His careful methods, scientific accuracy, and keen power of distinguishing cannot be too highly eulogized in these days of slipshod ornithology, and his influence in these respects upon the younger school of Russian ornithologists is evident on every hand. Unfortunately most of his papers were written in Russian, and are hence inaccessible to most students outside of the great Eastern Empire, but his last work,* destined to be the crowning work of his life, was published in both Russian and French. Of this, however, up to his death only the first part has been published, but it is to be hoped that enough material may be found among his papers to insure the completion of this invaluable synopsis of the avifauna of more than one half the circumboreal region. Of his many other works we will only mention his 'Birds of the Caucasus,' and his admirable memoir on the Russian Shrikes.

Bogdanow was a trinominalist and a 'splitter,' which with his conscientious and thorough research make his writings particularly useful. The data furnished by him can in most cases be utilized directly, and with him for a guide over unfamiliar ground one feels comparatively safe. Where one's material and specimens give out, Bogdanow's statements are usually of such a nature as to help one out of the difficulty. How fortunate, if we could say the same of most that is written and printed about birds nowadays!—L. S.

WHILE the wearing of dead birds, or portions of hem, for decorative purposes has immensely declined in this country during the last two years, and consequently the destruction of our native birds for such purposes, the barbaric trade in these decorations has by no means come to an end, as witness the following statistics of an auction sale held in London, March 21, of the present year. In a "Public Sale" list of Hale & Son, of Mincing Lane, London, handed us by a friend, we find advertised for sale on the above-named date, birds' skins, plumes, wings, and feathers, representing in the aggregate more birds than are contained in all the ornithological collections of this country, including private collections as well as public museums—in other words, *hundreds of thousands*, in this single auction sale! Besides about 16,000 *packages* and *bundles* of 'Osprey,' Peacock, Argus and other Pheasants, Ducks, "Paddy," and Heron feathers, we note several thousand *mats* and *hand-screens*, while under the head of "various bird skins," we figure up between 7,000 and 8,000 Parrots, shipped mainly from Bombay and Calcutta, but including some from South America; about 1000 Impeyan and 500 Argus Pheasants; about 1000 Woodpeckers; 1450 "Penguins" (Auks and Grebes?); some 14,000 Quails, Grouse and Partridges; about 4000 Snipes and Plovers; about 7000 Starlings, Jays, and

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* Conspectus Avium Imperii Rossici.

Magpies; over 12,000 Hummingbirds; about 5000 Tanagers; 6000 Blue Creepers and 1500 other Creepers (probably family Cœrebidæ); several hundred *each* of Hawks, Owls, Gulls, Terns, Ducks, Ibises, Finches, Orioles, Larks, Toucans, Birds of Paradise, etc.; several thousand each of Wrens, Manakins, Bee-eaters, Kingfishers, Doves and Pigeons; "1493 Swallows," in one lot; and about 12,000 are scheduled under "Black Heads," "Black and White," "Pink and Black," "Grey and Black," "Various," etc. The number distinctly scheduled as *skins* reached nearly or quite 100,000, while the number represented by the 16,000 or more "packages," and "bundles," and the 3500 mats and hand-screens must amount to at least as many more.

As such sales are not of unfrequent occurrence, and doubtless occur in other large cities as well as in London, the wonder is that the supply continues. The traffic, if much longer sustained, cannot fail to have a marked effect in depopulating the countries supplying these sales of their bird life. What a bloody Moloch is fashion! and how thoughtlessly otherwise intelligent and tender-hearted women obey her behests!

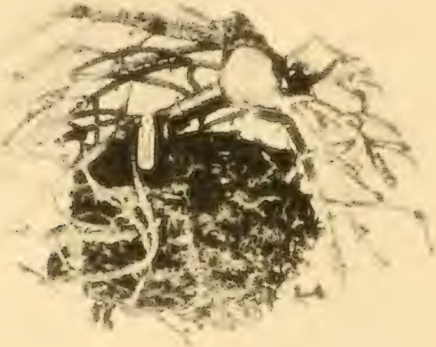
Since the above was written, the following has appeared in a recent number of the 'American Field,' which forms a fitting addendum to the foregoing: "Last year the trade in birds for women's hats was so enormous that a single London dealer admitted that he had sold 2,000,000 of small birds of every kind and color. At one auction in one week there were sold 6000 birds of paradise, 5000 Impeyan Pheasants, 400,000 Hummingbirds, and other birds from North and South America, and 360,000 feathered skins from India."

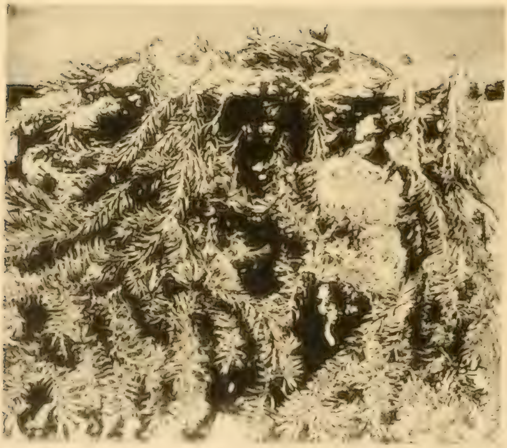
We have been permitted to copy the following from a recent letter of the late H. Pryer, which may be of interest to the readers of 'The Auk':

"I think I sent you my paper on the Borneo Edible Birds'-nests? All the ornithologists and chemists have been down on me for saying that it is composed of a peculiar sort of *Alga* which grows in damp places in the caves at 300 to 400 feet elevation above the sea, but I have just received news that I am perfectly right and every one else for the past seventy years is wrong! They said the nest was made of the bird's own saliva, but Divers, who has analyzed the nest and algæ, finds in the latter a very peculiar gum, and that the nest is formed of this gum, mixed with the saliva o: the bird. Divers was one of the strongest of my opponents, but now he finds I am right. I must say, however, that in the face of the weighty evidence brought against me I began to doubt the evidence of my own senses, although I was perfectly certain that a little pair of birds not bigger than the top joint of my thumb could not secrete several quarts of saliva three times a year to build their nest with."

Mr. C. B. Cory is still continuing his ornithological explorations in the West Indies, he having recently sent Mr. E. B. Gallenger to the Grand Bahama, while Mr. Clark P. Streator, formerly of California, has been engaged for an extensive collecting tour in the hitherto neglected portions of the Antilles. Mr. C. J. Maynard has just returned from an extended exploration, in Mr. Cory's interest, of Nassau, Andros, Inagua, and the Caymans, collecting large series of the birds of these islands, among which are some novelties.

A MEETING of the several Audubon Monument Committees of New York and vicinity was held at Columbia College, May 22, at which reports of progress were made. The work of collecting funds for the proposed monument is thus far not meeting with quite the success hoped, although there is as yet little reason for discouragement. Those who intend to contribute should not hold back, but promptly send their remittances either to the general treasurer, Dr. N. L. Britton, Columbia College, New York City, or to the treasurers of the several sub-committees, as they may prefer. The treasurer of the A. O. U. Committee, Mr. William Dutcher (51 Liberty Street, New York City), reports the following contributions received (up to June 11) since the publication of the statement made in the April number of 'The Auk': Chapter No. 382, Agassiz Ass'n, by H. S. Fullerton, Sec., $2.00; L. S. Foster, 1.00; C. K. Averill, Jr., 2.00; Cash, Phila., Pa., 5.00; F. C. Browne, 2.00; L. B. Adams, 2.00; B. F. Gault, 5.00; Miss A. S. Van Cortlandt, 2.00; F. Bond, 1.00; N. S. Goss, 5.00; J. H. Sage, 10 00; "Colorado Springs," 5.00; R. Deane, 5.00; W. F. Hendrickson, 1.00; A. H. Hawley, 1.00; Prof. Alfredo Dugès, 5.00; W. C. Avery, M. D., 5.00; "Percy," 5.00; W. H. Foote, 5.00; Adolf Bachofen von Echt, 10.00; Dr. R. Blasius, 8.00; José C. Zeledon, 10.00; Anastasio Alfaro, 10.00. Total, $107.00.





NESTS OF REGULUS SATRAPA.

Upper figure: nest found June 16, from photograph taken after leaves had dropped off.
Lower figure: nest found June 13, from photograph taken while the leaves yet remained on the branch.

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BREEDING OF THE GOLDEN-CRESTED KINGLET (*REGULUS SATRAPA*) IN WORCESTER COUNTY, MASSACHUSETTS, WITH A DESCRIPTION OF ITS NEST AND EGGS.

BY WILLIAM BREWSTER.

DURING a visit to Winchendon, Worcester County, Massachusetts, in the latter part of June, 1887, I found, among other interesting things, a pair of Golden-crested Kinglets with young, the latter only a few days from the nest. They were in dense woods of mixed white pine (*P. strobus*) and spruce (*A. nigra*) on low, rather swampy ground. A careful search through several similar woods in the neighborhood failed to reveal any more birds of this species. Perhaps there were no others in 1887, for Mr. C. E. Bailey, who was my companion on that occasion, met with none either before or after my visit, although he spent most of the season collecting about Winchendon. Over the very same ground, however, in June, 1888, I found no less than six pairs of these Kinglets and, with the assistance of Messrs. C. E. Bailey, S. W. Denton, and H. M. Spelman, secured three of their nests, two with sets of nine eggs each.

As the published descriptions of the nesting of this species are somewhat meagre and more or less conflicting, it seems worth while to treat the present specimens at some length.

The first nest was found June 13, 1888, when the birds were at work on the lining, the exterior being apparently completed, and was taken June 29, with a set of nine eggs, four perfectly fresh, the others slightly incubated. It was placed in a tall, slender spruce (*A. nigra*), on the south side, within about two feet of the top of the tree, and at least sixty feet above the ground, suspended among fine pendant twigs about two inches directly below a short horizontal branch, some twelve inches out from the main stem, and an equal distance from the end of the branch. The tree stood near the upper edge of a narrow strip of dry, rather open woods bordered on one side by a road, on the other by an extensive sphagnum swamp, the growth both in the swamp and along its edges being almost exclusively spruces (*A. nigra*) and balsams (*A. balsamifera*).

The nest measures externally: greatest depth, 3.60; least depth, 2.70; greatest diameter, 4.20; least diameter, 3.00 inches. Two measurements are required for each dimension because of the irregularity of the external outline. This although generally rounded is broken in places by deep depressions and prominent knobs or excrescences. The top of the nest is open, but the rim is slightly contracted or arched on every side over the deep hollow which contained the eggs. The extent of this contraction is best shown by the following measurements of the interior cavity: diameter at top, 1.15 × 1.95 inches; diameter midway between top and bottom, 1.40 × 2.10. The cavity is oblong, not round. The walls vary in thickness from 1.35 to .40. Outwardly they are composed chiefly of green mosses* prettily diversified with grayish lichens and *Usnea*, the general tone of the coloring, however, matching closely that of the surrounding spruce foliage. The interior at the bottom is lined with exceedingly delicate strips of soft inner bark and fine black rootlets similar to, if not identical with, those which almost invariably form the lining of the nest of the Black-and-yellow Warbler. Near the top are rather numerous feathers of the Ruffed Grouse, Hermit Thrush, and Oven-bird, arranged with the points of the quills down, the tips rising to, or slightly above, the rim and arching inward over the cavity, forming a screen that partially concealed the eggs.

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*These have been identified by a botanist as representing five species of *Hypnum* and one of *Frullania*.

The second nest was found June 16, when it was nearly completed, and taken June 29 with nine eggs, five of which were fresh, the remaining four being slightly incubated. The locality was a lonely glen on high land between two ridges. The ridges were covered with young white pines. The prevailing growth in the glen was spruce and hemlock, the trees of large size and standing so thickly together as to shut out nearly all sunlight from the ground beneath. The nest was on the west side of a sturdy, heavily limbed spruce (*A. nigra*) about fifty feet above the ground, twenty feet below the top of the tree, six feet out from the trunk, and two and a half feet from the end of the branch, in a dense cluster of stiff, radiating (not pendant) twigs, the top of the nest being only an inch below, but the whole structure slightly on one side of the branch from which its supports sprang. Above and on every side it was so perfectly concealed by the dense flake-like masses of spruce foliage that it was impossible to see it from any direction except by parting the surrounding twigs with the hand. From directly below, however, a small portion of the bottom was visible, even from the ground. The foliage immediately over the top was particularly dense, forming a canopy which must have been quite impervious to the sun's rays, and a fairly good protection from rain also. Beneath this canopy there was barely sufficient room for the birds to enter. In general shape and construction this nest closely resembles the one above described. It is, however, smaller, shallower, more compact, rounder, and less irregular in outline, measuring as follows: externally, greatest depth, 2.55; least depth, 2.45; greatest diameter, 4; least diameter, 2.90 inches; interior, diameter at rim, 1.70; diameter midway, 1.75; depth, 1.40; greatest thickness of walls, 1.60; least, .75. The materials composing the exterior are, similarly, green mosses and gray lichens, but the lichens are much more sparingly used. The lining, as far as can be seen without subjecting the nest to undue violence of handling, is wholly of the downy under feathers of the Ruffed Grouse. These are used so lavishly that, radiating inward from every side, they nearly fill the interior and almost perfectly conceal its contents.

The third nest was also in a spruce which stood near the top of a steep, picturesque hillside covered with noble old hemlocks interspersed with a few rather stunted spruces, the ground beneath rough and broken by ledges whose rugged outlines were more or less softened by a luxuriant covering of moss and rock ferns. The nest was on the south side of the tree about thirty feet above the ground, twelve feet out from the main stem, and five feet from the end of the branch. It was found June 17, when the bird was at work carrying into it what appeared to be the lining. We could not examine it closely without cutting off the branch, so it was left until June 29, when it proved to be empty, evidently deserted, and so dilapidated that at first we were inclined to believe it an old nest. This cannot have been the case, however, for the materials of which it is composed are quite new and fresh. These are essentially the same as in the other two nests, but there is no lining, although the outer edges of the rim as well as much of the upper portions of the exterior are covered with a profusion of feathers (chiefly those of the Ruffed Grouse with a few of the Red Crossbill) while others are merely entangled among the surrounding twigs. The probable explanation of this state of affairs is that the nest was first deserted, and shortly afterwards partially dismantled, either by the owners or by some mischievous squirrel or mouse. Originally, however, it must have had feathers over most of the exterior, for many of those now there are firmly attached to, or even woven into, the moss of which it is composed. This nest is larger than either of the others, measuring as follows: greatest external diameter, 4.00; least, 2.10; greatest depth, 3.90; least, 2.90 inches. The interior is too badly damaged to admit of accurate measurements.

To recapitulate. In position—but not of course in construction—the first nest resembles that of the Baltimore Oriole, being similarly hung near the ends of long, drooping twigs. The second is built more like a Vireo's, but with this difference, that instead of being suspended by its upper edges only, and between the forks of a single stem, it is supported on every side, and from the top nearly to the bottom, by numerous slender, but stiff, radiating twigs. It is, nevertheless, a distinctly pensile structure. The position of the third nest is different from that of either of the others. Placed nearly midway between two stout branches which in reality are forks of the same branch, one above the other, and at the point in question about six inches apart, it is attached by the sides and upper edges to the twigs which depend from the branch above, while its bottom rests firmly on a bristling platform of stems which rise from the branch below. Thus it is at once pensile and non-pensile.

The eighteen eggs making up the two sets above-mentioned vary considerably in shape. The majority are more or less regularly ovate, but several are elliptical-ovate, while two are very nearly perfectly elliptical-oval. The ground color varies from creamy white to exceedingly deep, often somewhat muddy, cream color. Over this light ground are sprinkled numerous markings of pale wood-brown, while at least three specimens have a few spots and blotches of faint lavender. The brown markings vary in size from the finest possible dots to rather large blotches. In most of the specimens they are distributed pretty thickly over the entire shell, but in nearly all they are most numerous about the larger ends where they form a more or less distinct wreath pattern, while in four or five (and these have the lightest ground color) they are nearly confined to the larger ends, the remainder of the egg being very sparsely marked. Separating these eighteen eggs into the two sets to which they respectively belong, I find that these sets resemble each other very closely in every way, each having specimens representing all the variations above described excepting that all three of the eggs with lavender markings belong to the same set. In both sets the whitest, most sparsely spotted eggs were the freshest, showing that they were the last ones laid.

Lest the detail of the above description mislead the reader as to the general appearance of these eggs it may be well to add that while there can be no doubt that the markings are genuine pigment spots and not mere superficial stains (this has been doubted by some writers), they are, as a rule, so fine and so little darker than the ground color, that many of the eggs when viewed at a distance or in a poor light appear brownish cream color and immaculate. The eggs just described measure respectively: (Set A—9) .56 × .44, .57 × .44, .55 × .42, .57 × .43, .57 × .44, .57 × .44, .56 × .45, .57 × .44, .57 × .44 inches. (Set B—9) .56 × .44, .56 × .45, .52 × .42, .59 × .45, .57 × .45, .53 × .43, .57 × .45, .56 × .44, .54 × .44 inches.

In both nests the eggs, too numerous to find sufficient space for their accommodation on the bottom of the nest, *were piled in two layers, one above the other*. In the first nest the relative number of eggs in the two layers was not noted. In the second there were five eggs in the lower and four in the upper layer.

All these nests were found by watching the birds while building, a task of no slight difficulty in dense spruce woods where the light was dim, even at noonday, and mosquitoes were so numerous as to make it torture to remain still for any considerable length of time. Moreover, the movements of the little architect were erratic and puzzling to the last degree. One moment fluttering at the end of a branch, her bill filled with a mass of building material, or tugging at the loose end of a shred of bark or moss, the next hidden from sight among the dense spruce foliage, now flitting rapidly from tree to tree, again dashing back and forth between two adjoining trees, the female would often appear and disappear a dozen times and at as many different places in the course of a minute or two. The chief difficulty, of course, was to make out just when and where she deposited her burden, which often vanished in the most unaccountable way. We finally found that her almost invariable custom was to approach the nest by short flights and devious courses, and upon reaching it dash in, deposit and arrange her load in from *two to four seconds*, and at once dart off in search of more. When it is considered that the nest, even at a distance of only a few yards, was indistinguishable from hundreds of dark clusters in its own and neighboring trees, and that the bird during her flights to and from it often entered and remained quite as long within several of these clusters as in the nest itself, the difficulties of the case will be better understood. As a matter of fact we did not in a single instance settle the exact position of the prize until we had watched the birds for several hours and spent much fruitless time in climbing to the deceptive clusters already mentioned.

In her flights after building material the female sometimes went a distance of a hundred yards or more, but oftener she confined her quest to the trees within a radius of fifty yards or less of the one which concealed the nest. She was invariably followed closely by the male who, however, did not assist her in any way other than by singing almost incessantly, in an undertone. In the case of the three nests which we took, and a fourth which we must have been very near to but did not find, the males in every instance first attracted us to the spot where their mates were at work by this peculiar, subdued song. It was often repeated almost incessantly dozens of times in succession. Should it prove to be, as seems probable, an invariable and characteristic accompaniment to the operation of nest-building its value as a clue to the neighborhood of the nest and the presence of the female is worth bearing in mind. Besides the song* both birds uttered frequently a low *ti*, *ti*, *ti* which seemed to serve as a call to indicate one another's presence or position.

In each instance the sitting female left her eggs as soon as the movements of the climber began to shake the tree, but when he neared the nest she with her mate showed the utmost anxiety and boldness, approaching within a few feet of his head and uttering the *tzee-tzee-tzee* note incessantly.

To conclude, the nests above described are, I believe, the first that have ever been taken in Massachusetts, although my finding the brood of young birds at Winchendon in 1887 was, of course, prior and equally conclusive proof that the species breeds within our limits. That it breeds regularly at Winchendon is highly probable, but, as already stated, there are reasons for doubting that it is always as common there as it was in 1888. About July 1 of this latter year, it was discovered by Mr. Faxon in considerable numbers, and unquestionably breeding, on the northern side of Mt. Graylock in Berkshire County where I searched for it vainly in 1885 although, to be sure, I did not visit the particular part of that mountain where it has since been found. Hence my failure to meet with it affords no proof of its absence or even rarity there in 1885. Nevertheless I cannot help thinking that the number of birds which nested the past season in both Berkshire and Worcester Counties may have been exceptional.

Another point worth considering is the approximate date at which this Kinglet may be assumed to nest. The fact that the nest found by Mr. Minott† among the White Mountains of New Hampshire in 1876 contained young as late as July 16, taken in connection with my observations in 1888, would seem to indicate that the bird is a late breeder and that somewhere between

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* This begins with a succession of five or six fine, shrill, high-pitched, somewhat faltering notes and ends with a short, rapid, rather explosive warble. The opening notes are given in a rising key but the song falls rapidly at the end. The whole may be expressed as follows: *tzee, tzee, tzee, tzee, ti, ti, ter-ti-ti-ti-ti.*

† Land and Game Birds of New England, p. 56.

June 10 and 17 would be the best time to find the female building (it would be next to useless to search for the nests after they are completed), while June 25 to July 1 should be early enough to expect full sets of eggs. But opposed to this conclusion are the early date (June 26) at which I found young on wing near Winchendon in 1887 and the record * by Mr. Charles H. Andros of a set of ten eggs taken by Mr. Cheney at Grand Manan, New Brunswick, "on or about June 1." It is possible that the species rears two broods in a season but, on the whole, I am inclined to believe that its time of nesting is irregular, varying at different places or at the same place in different years.

BIRDS OF CARROLL COUNTY, INDIANA.

BY BARTON W. EVERMANN.

Carroll County lies in the northern central part of Indiana, about one hundred miles south of Lake Michigan. The chief river of the County is the Wabash, which flows southwest across the northwest part of the County. The greater part of the County lies to the east and southeast of the river, and is drained into it by Rock, Deer, and Wild Cat Creeks. The Tippecanoe River flows for a few miles through the northwest corner of the County, its direction being almost due south.

All that portion of the County lying to the east and southeast of the Wabash (embracing ten of the thirteen townships) was originally very heavily timbered, and there yet remain many uncleared acres. The chief forest trees are beech, red and white oak, elm, ash, poplar (tulip), sycamore, maple (hard and soft), walnut (black and white), hickory, — in short the usual deciduous trees of the ordinary forest of central Indiana. There are practically no pines or other evergreens in the County, except a very few along the Tippecanoe. The three townships lying on the right bank of the Wabash differ materially from those on the other side. Adams, the most eastern of the three, is inclined to

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* Ornithologist and Oölogist, Vol. 12, p. 203.

be quite broken near the river, and is covered with a heavy growth of oaks. The other two townships are nearly all prairie, with here and there a grove of small white oaks, and a belt of timber along each of the two rivers. Excepting a portion of Adams township and a small area in the southwest corner of the County near where Wild Cat Creek leavés it, the surface may be said to be level or gently undulating. All the streams which empty into the Wabash from the east flow in a general westerly direction.

Most of the observations upon which this list is based were made (1) in the vicinity of Burlington in the southeast corner of the County, and (2) near Camden in the central part of the County. Burlington is situated on the south bank of Wild Cat Creek, and Camden is upon Deer Creek, sixteen miles to the northwest. During the years 1883-1885, however, I was enabled to make observations in every part of the County. I began recording my observations of the birds of this County in the autumn of 1877, and continued it until July, 1879, when I left the State. Some few notes are the results of brief visits in the summers of 1881 and 1882. But the list chiefly depends upon the observations made from March, 1883, to July, 1885.

In order that the list might be made thoroughly reliable, in so far as is in my power to make it so, I have included in it only those species which I have positively identified as belonging to the avifauna of the County. Not a single species not actually seen by me in the County has been admitted into the list proper. Thus restricted, the list pretty correctly indicates what the student of birds will find when he collects here. Where dates are given, those for the spring migrations refer to first arrivals unless otherwise stated. In nomenclature and classification the A. O. U. Code and Check-List of N. A. Birds has been followed.

1. **Podilymbus podiceps.** Pied-billed Grebe. — I have occasionally seen this Diver in spring and again in the autumn on Deer Creek. It seems to be but a rare migrant.

2. **Urinator imber.** Loon. — Seen occasionally on the Wabash and rarely on Wild Cat and Deer Creeks. I saw one which was killed on Wild Cat Creek, April 18, 1885.

3. **Larus argentatus smithsonianus.** American Herring Gull.

4. **Larus delawarensis.** Ring-billed Gull.

5. **Larus philadelphia.** Bonaparte's Gull.—I have seen these three species upon the Wabash a few times in spring, but never in autumn. Specimens of the last were obtained at Lake Maxinkuckee April 17, 1885.

6. **Sterna hirundo.** Common Tern. — On May 2, 1884, I saw perhaps a dozen flying up the river near Delphi. I obtained one at Lake Maxinkuckee May 11, 1885, when it was common.

7. **Pelecanus erythrorhynchos.** American White Pelican. — Rare migrant. One shot by Mr. W. W. Black in the spring of 1881, near the Tippecanoe River.

8. **Mergus americanus.** American Merganser. — Common spring migrant; less common in the autumn and winter. It usually appears on Deer Creek about the first of March (March 1, 1878; March 1, 1879; Feb. 13, 1884; Feb. 17, 1885). In the spring of 1885 it continued in Deer Creek until late in April. A few are usually to be found in winter in the Wabash wherever it is not frozen. During the spring migrations this seems to be the most common species on the creeks of the County.

9. **Mergus serrator.** Red-breasted Merganser.—This is one of the rarest Ducks in this region. I have seen it but two or three times.

10. **Lophodytes cucullatus.** Hooded Merganser.—A rather common migrant, remaining in the spring as late as May. I have often met with single pairs about swamps and ponds in midsummer, and have seen the young on Deer Creek in July. I think, however, that the bulk of the species breeds much farther north. I have seldom seen the males in full adult plumage. April 8, 1885.

11. **Anas boschas.** Mallard. — The Mallard is not rare on the river during the spring and autumn migrations, but I have not often seen it on the smaller streams. It probably bred in the County formerly, but I do not think it does so now.

12. **Anas obscura.** Black Duck.—I saw a single specimen in the Delphi market in March, 1879, which was said to have been shot on the Wabash near the town.

13. **Anas americana.** Baldpate. — Spring and autumn migrant, — apparently not common. A flock of about a dozen seen on Deer Creek March 26, 1884, from which a female was shot. Another flock of six was seen on the same creek March 24, 1885.

14. **Anas carolinensis.** Green-winged Teal. — Probably more common than my records indicate. The only specimen I ever saw in the County is a female which I took on Deer Creek, April 8, 1885.

15. **Anas discors.** Blue-winged Teal. — I have seen specimens in the Delphi market, but never took any in the County myself. Common at Lake Maxinkuckee May 11, 1885.

16. **Spatula clypeata.** Shoveller. — A not very common migrant. Shot one on Deer Creek, March 18, 1879, and another March 26, 1885. Several were seen on this last date.

17. **Dafila acuta.** Pintail.—A rather rare migrant.

18. **Aix sponsa.** Wood Duck.—Formerly a common summer resident, but now one of the rarest Ducks in this region. March 1 and 14, 1879; July, 1877; March 26, 1885.

19. **Aythya affinis.** Lesser Scaup Duck.—Migrant, but not often seen by me. April 18, 1885.

20. **Glaucionetta clangula americana.** AMERICAN GOLDEN-EYE.—Rare migrant; seen most often in March and April.

21. **Glaucionetta islandica.** BARROW'S GOLDEN-EYE.—A very rare bird in this County. A female which I shot in Deer Creek, near Camden, March 19, 1885, is, as far as I know, the only specimen of the species ever taken in this part of the State.

22. **Charitonetta albeola.** BUFFLE-HEAD.—A more common migrant than either of the last. A few probably remain in open places in the river through the winter.

23. **Erismatura rubida.** RUDDY DUCK.—A rare spring and autumn migrant.

24. **Branta canadensis.** CANADA GOOSE.—Formerly an abundant migrant, often stopping in wheat fields to feed, but of late years it is much less common; only a few flocks are seen flying over each spring and autumn, and but rarely are any killed by the local sportsmen. On the prairies to the northwest of Carroll County they are said to still stop in considerable numbers.

25. **Olor columbianus.** WHISTLING SWAN.—A regular but rare migrant, most often seen in the spring. One or more specimens are taken nearly every spring on the Wabash near Delphi.

26. **Olor buccinator.** TRUMPETER SWAN.— Less common than the Whistling Swan. I remember but one specimen; that was killed on Wild Cat Creek, near Burlington, several years ago.

27. **Botaurus lentiginosus** AMERICAN BITTERN.—While the Bittern is probably a not uncommon migrant through the County, I have seen very few within the County, owing no doubt to the fact that I was able to make but few observations in regions suitable for such birds. Specimens gotten at Lake Maxinkuckee April 15 and May 2 and 9, 1885.

28. **Ardea herodias.** GREAT BLUE HERON.—This Heron begins to arrive from the South quite early in the spring (April 8, 1884; February 14, March 1 and 18, 1885), and remains until late in October. It seems to be by far the most abundant Heron which visits us. At present there are two large heronries in the County that I know of. The first of these is in Adams township near the northern limit of the County, about six miles north of the Wabash and about the same distance east of the Tippecanoe. The other is in what is known as the Maple Swamp, in the southern part of the County, about six miles south of Wild Cat Creek, or eighteen miles from the Wabash. This swamp is made by the widening of a small stream called Middle Fork, so that it covers an area of several hundred acres. The lower portion of this swamp is covered with a heavy growth of swamp ash and soft maple, and in the tops of these trees the Herons build their nests. My first visit to this heronry was on June 12, 1882. We found more than a hundred pairs nesting there then, and their many nests, some no longer used, presented a very interesting sight. Passing by the swamp in winter when the leaves are off, the nests show very plainly. As many as thirteen nests were seen in one tree, and many other trees contained from three to ten nests each. I climbed to many of

these nests on May 21, 1883, and found young in some and eggs in various stages of incubation in the others. It is said that many more nested here formerly, but they have been so harassed and molested by squirrel hunters and others who annoy them needlessly, that they are being gradually driven away. In the last two years the swamp has been ditched and this heronry may now be counted among the things of the past. Solitary pairs of Herons are found breeding in various other parts of the County, and I remember that years ago there was a small colony (of perhaps twenty pairs) in some large cottonwoods about a mile south of Burlington, near my father's farm.

29. **Ardea egretta.** AMERICAN EGRET.—Seen in flocks of six to ten flying northward in the spring, and single individuals are common along the streams during July, August, and the first part of September. I do not think any breed in this County.

30. **Ardea virescens.** GREEN HERON.—This little Heron is a common summer resident, breeding in the tops of small trees along the creeks, and occasionally in apple trees in old orchards. It arrives from the south late in April, and full sets of eggs are found by May 13.

31. **Nycticorax nycticorax nævius.** BLACK-CROWNED NIGHT HERON.—Apparently a very rare migrant. On the evening of April 30, 1878, I shot a female in fine plumage at a small pond near Camden. On November 24, 1884, a young female was killed near Camden and brought to me. Both of these are now in my collection. About September 1, 1887, another specimen was killed near Camden. These are the only specimens of the species I have ever seen or heard of in the County.

32. **Grus mexicana.** SANDHILL CRANE.—A regular migrant, but seldom seen except in the prairie portion of the County. April 7, 1885.

33. **Porzana carolina.** SORA.—A rather common migrant, to be met with about the first week in May if you chance to search for it in suitable places. Common at the Armstrong Pond near Camden, May 9-10, 1885.

34. **Gallinula galeata.** FLORIDA GALLINULE.—One killed near Burlington, April 28, 1883, and another seen May 11, 1885. These are the only specimens of this southern bird that I have ever seen in the State. The last of these was seen in a woodland near Burlington. It was quite tame and I was able to follow it about for some time, driving it from one pile of brush or small thicket to another. It would walk or run slowly, never attempting to fly except when crowded closely. Being without my gun I was unable to secure it. The one killed April 28, 1883, is now in my collection.

35. **Fulica americana.** AMERICAN COOT.—A not uncommon migrant. April 19, 1884; April 8, 1885; November 21, 1884. In the spring of 1885, one was taken May 12.

36. **Philohela minor.** AMERICAN WOODCOCK.—Formerly a rather common summer resident, but now quite rare. Nests early in April. Young able to fly at least as early as July 1.

37. **Gallinago delicata.** WILSON'S SNIPE.—Rather common migrant, most often seen in spring. April 21, 1885; May 1, 1884.

38. **Tringa maculata.** PECTORAL SANDPIPER.—Rare migrant in March and April.

39. **Tringa minutilla.** LEAST SANDPIPER.—Rare migrant.

40. **Ereunetes pusillus.** SEMIPALMATED SANDPIPER.—Not uncommon migrant. April 24, 1884; April 21, 1885. A few breed(?).

41. **Limosa fedoa** MARBLED GODWIT.—Very rare migrant. April, 1883.

42. **Totanus melanoleucus.** GREATER YELLOW-LEGS.—Seen occasionally along the streams in spring and autumn.

43. **Totanus flavipes.** YELLOW-LEGS.—Migrant; apparently less common than the preceding.

44. **Totanus solitarius.** SOLITARY SANDPIPER.—Rather common migrant.

45. **Actitis macularia.** SPOTTED SANDPIPER.—Rather common summer resident.

46. **Ægialitis vocifera.** KILLDEER.—Common summer resident. Usually arrives about March 15. None remain over winter.

47. **Colinus virginianus.** BOB-WHITE.—Formerly an abundant resident, but now rare. During the years 1883-1885, I do not think I saw over a hundred Quail in the County. Hard winters and greedy pot-hunters have about exterminated them.

48. **Bonasa umbellus.** RUFFED GROUSE.—A rare resident, small numbers being found in certain localities that I know of. These are usually in heavy undergrowth along the streams. March 7, 1878, one shot. August, 1881, several seen. Several seen in the winter of 1881–82.

49. **Tympanuchus americanus.** PRAIRIE CHICKEN.—Rare resident in the northwest part of the County where they can be heard almost any morning during the early spring. A few years ago they were occasionally seen in the eastern part of the County.

50. **Meleagris gallopavo.** WILD TURKEY.—Up to about 1870 a common resident. During the winter it was a common practice to trap the Wild Turkey in large rail pens. A trench was dug under one side of the pen, and by scattering corn along it the birds were induced into the pen, and when once inside they were unable to see the way out, a broad board being placed over the trench just inside the rails.

The last that I saw or heard of in the County was in February, 1878, near Camden.

51. **Ectopistes migratorius.** PASSENGER PIGEON.—Until within the past fifteen years Wild Pigeons were very abundant during the spring migrations, and again during the autumn when there was an abundance of 'mast.' Then thousands were caught in nets, especially on the prairie near Pittsburg. A few were killed in the autumn of 1883, and I saw two on May 8, 1884, these being the last I have seen in the County. One seen May 3, 1883. Several seen at Maxinkuckee April 6, 1885.

52. **Zenaidura macroura.** MOURNING DOVE.—An abundant summer resident, and occasionally a few remain all winter. They generally arrive in the spring about March 16, and full sets of eggs are found as

early as April 5. On May 9, 1885, I found a nest of the Dove containing *three* eggs,—the first instance that ever came under my observation of more than two eggs in a nest.

53. **Cathartes aura.** Turkey Buzzard.—The Turkey Buzzard is a common summer resident of Carroll County, arriving in the spring early in March. Full sets of eggs were obtained April 23, and again on April 29. March 16, 1884; March 12, 1885.

54. **Circus hudsonius.** Marsh Harrier.—Spring visitant. I have seen it but rarely. I think it breeds near Lake Maxinkuckee, as I have seen it there in July.

55. **Accipiter velox.** Sharp-shinned Hawk.—A very rare resident, seen oftenest in the spring. One gotten October 27, 1884.

56. **Accipiter cooperi.** Cooper's Hawk.—A rare resident, especially so in winter. Nest with full complement of eggs found May 10, 1883.

57. **Buteo borealis.** Red-tailed Hawk.—Our most abundant Hawk. While it is resident as a species, yet the individual birds migrate more or less. They appear most numerously in March and April, and again in August and September. I have found young Hawks in the nest as early as April 15.

58. **Buteo lineatus.** Red-shouldered Hawk.—Resident, but less common than the preceding. Breeds about the same time.

59. **Buteo latissimus.** Broad-winged Hawk.—I have occasionally seen this Hawk in spring and autumn. It appears to be rather rare.

60. **Archibuteo lagopus sancti-johannis.** Rough-legged Hawk.—A rare winter visitant.

61. **Aquila chrysaëtos.** Golden Eagle.—A very rare winter visitor. I know of one that was killed in the eastern part of the County in December, 1883.

62. **Haliæetus leucocephalus.** Bald Eagle. Rather frequent as a winter visitor. Hardly a winter passes that two or three are not taken in the County. I have noticed them oftenest along the Wabash and the Tippecanoe near which they are said to have bred not many years ago. I have a fine adult male that was caught in the southwestern part of the County, February 20, 1885. Scarcely does an Eagle come into our State now and get away alive, if he tarry more than a day or two.

63. **Falco columbarius.** Pigeon Hawk.—Perhaps a rare resident.

64. **Falco sparverius.** Sparrow Hawk.—A common summer resident, and a few remain all the year.

65. **Pandion haliaëtus carolinensis.** Fish Hawk.—The Osprey is a rare spring and autumn visitant. September 21, 1883; April 22, 1884; September 22, 1884.

66. **Asio wilsonianus.** Long-eared Owl.—Seemingly a rare winter visitor. I have specimens obtained January 29, 1884, February 5, 1886, and January 14, 1888.

67. **Asio accipitrinus.** Short-eared Owl.—A very rare winter visitant.

68. **Syrnium nebulosum.** Barred Owl.—Resident. This is the most common Owl in this part of the State.

69. **Nyctala acadica.** Saw-whet Owl.—Probably resident,—very rare. The only time I ever saw any Owls of this species in Carroll County was on May 8, 1883. In an old thicket near Burlington, I found six young Saw-whets in a hole in a dead elm. The hole was about twenty feet from the ground, and the young Owls were able to fly quite well. I have heard this Owl at various times in the spring, but these are the only ones seen.

70. **Megascops asio.** Screech Owl.—A common resident, but apparently more abundant some years than others. They were particularly abundant in the winter of 1878-79, and again in 1884-85. Perhaps half of those taken in 1878-79 were of the red form, while nearly all those taken since then were gray. A red male was caught at Burlington, January 14, 1888.

71. **Bubo virginianus.** Great Horned Owl.—Next to the Barred Owl, our most common resident.

72. **Nyctea nyctea.** Snowy Owl.—An extremely rare visitant. One was taken near Camden in the winter of 1865.

[*To be continued.*]

NOTES ON THE NEST AND EGGS OF *PEUCÆA ÆSTIVALIS BACHMANI* AUD., BACHMAN'S SPARROW.

BY CAPT. CHAS. E. BENDIRE.

The life history of this interesting species is still rather imperfectly known, and as far as I am aware no authentic accounts of its nest and eggs are to be found in any ornithological publications. Even its distribution is not well defined as yet. Mr. William Brewster found it abundant near Charleston, South Carolina, and this seems to be the only point on the Atlantic coast where it has so far been taken. It is said to breed there. See Auk, Vol. II, Jan., 1885, p. 106. According to Ridgway's Manual of North American Birds, its habitat is given as follows. Southern Atlantic and Gulf States and lower Mississippi Valley, north to North Carolina, eastern Tennessee, Kentucky, southern Illinois and Indiana, west to middle northern Texas. Mr. Wm. Lloyd, in his list of birds of Tom Green and Concho Counties, Texas (Auk, Vol. IV, Oct., 1887, p. 292), says: "*Peucæa æstivalis bachmani*, Bachman's Sparrow. Summer visitor in eastern Concho County. Nests found May 20 to June 1. Eggs invariably four." This is the only reference to the nest and eggs of this form known to me, and is rather vague.

Through the kindness of Dr. Wm. C. Avery of Greensboro, Alabama, an enthusiastic naturalist, who has devoted considerable labor and no little time to the study of the nesting habits of this species, I am enabled to give what I consider the first reliable and accurate descriptions of the nest and eggs of Bachman's Sparrow. In addition to not less than five nests and several full sets of eggs, adult birds, and young of the year, all generously presented to the National Museum collection at Washington, D. C., Doctor Avery has sent the writer small pen and ink sketches of several of the nests and a beautifully executed crayon drawing, natural size, by Miss M. Erwin, which shows the peculiar and unique structure and shape of these nests as far as this genus is concerned, perfectly, and enables me to give a better pen picture of them than I could have done otherwise. Greensboro, Alabama, is situated in the central part of the State, about 140 miles north of Mobile.

All the nests of this bird vary totally in structure from those of the other species of the genus *Peucæa*, as far as known to me. They are all distinctly roofed over or domed, a feature only found in the nest of a closely allied species, *Embernagra rufivirgata*, the Texas Sparrow, which constructs a somewhat similar nest. They are cylindrical in shape, about seven or eight inches long by three inches in height, and four and one half inches wide. The inner cavity is from three to four inches in length, about two inches wide, and one and three quarters inches high. The rear wall of the nest is about one and three quarters inches thick, the sides about an inch, and the roof a little over half an inch in thickness. These measurements vary somewhat in different specimens. The nests are all constructed out of dry grasses exclusively, and are lined with fine grass tops only. Some are much more artistically and compactly built than others; the roof projects somewhat over the entrance in all cases. The measurements are taken from the best preserved nest, No. 23,611, National Museum Collection, obtained May 8, 1888, near Greensboro, Alabama, containing four nearly fresh eggs. The base of the nest is always placed in a slight depression of the ground, and the entrance is invariably canted upwards, at an angle of about 15°, in some instances the elevation is greater still. The entrance to the majority of the nests found faced the west. The above-mentioned nest was found on the side of a hill in a sparse growth of old-field pines (*Pinus tæda*), and was supported in the rear by a tuft of grass (broom sedge).

A second one, found May 9, in a patch of pine and plum bushes (*Prunus chicasa*) was held snugly between two tufts of broom sedge. It contained three young birds nearly grown and an addled egg. The parents were perched on a pine, about fifteen steps from the Doctor, and manifested their alarm at his presence by their nervous movements. A short search revealed this nest. It resembled the one found on the 8th, except that the entrance was somewhat more inclined upward, and was not quite so well concealed.

A third nest was found May 23; concerning this Doctor Avery wrote me as follows: "Found nest of Bachman's Sparrow today, on the slope of a hill covered with old-field pines, in an open space, under a fallen pine branch, some coarse grass growing near it. The parent fluttered from under my feet, which had disturbed the nest by striking the pine limb; my left foot touched the right side of the nest and shook the limb before the bird moved. She drew herself on the ground about a foot from me, and then, literally trembling, every feather quivering in her body, her tail spread and wings drooping, she ran along about ten feet from me. There she remained in open view beside a pine tree, till I at last discovered the nest under my very feet. During all this time she uttered not a sound. When I moved towards her she ran off through some thick weeds and briers, and finally, I pursuing, she perched upon the limb of a tree and began her '*seep, seep*,' till, to make identification sure, I reluctantly shot her."

On June 3 a fourth nest was found in a similar situation to the last, and as in former cases, the noise made by the alarm of the parent at the Doctor's presence attracted his attention and indicated to him where to search. In a letter dated June 4 he writes me regarding this find, as follows: "Yesterday I found still another nest of Bachman's Sparrow, but it contained four fledglings instead of eggs. I had been looking for nests of this bird for several hours when, pausing a few moments to look at a tree called here 'mimosa' (*Albizzia julibrissin*) and wondering by what agency it had been brought to this unusual spot amongst the pines, my attention was attracted by a dark looking little object, quadruped or reptile as I at first supposed, running through the grass and uttering '*chäy*, *chäy*,' a sound more like the hissing of a snake than the scolding of a bird. I soon discovered my mistake, however, for the Sparrow, a Bachman's, remained about ten feet from me until I found its nest. Its entrance faced me, looking this time towards the north (the first three found all faced the west). It required a close search to find this nest, though I was standing not more than six feet from it when the peculiar hiss, as it were, of the parent bird and its rustling in the grass, startled me from my musings as to how the beautiful mimosa had reached that desolate spot amongst the pines. A peep into the cosy structure discovered the objects of my search ; not four glistening eggs this time, but four outstretched reptile-like mouths and necks greeted my view. At my approach the old bird did not fly, but ran away a few feet from the nest and changed his scolding into an anxious '*seep*, *seep*' till I turned towards him, when he ran along ahead of me for some steps, then rose and perched upon a fallen tree top, chipping and turning about much after the manner of a Wren. Here, while I was examining him with my field glass, he surprised me by bursting into song, soft, sweet, and full of gladness as that which at times wells from his throat when the shadows of evening begin to creep over his sombre pines. It was the male bird that I surprised in the act of feeding his young, who thus expressed his satisfaction at having lured me from his nestlings."

On June 6 Doctor Avery found another nest of Bachman's Sparrow, containing two eggs. It was domed like those preously found, but the roof was so thin and poorly constructed, that the eggs could be seen through the latter, when standing over and behind the nest. The parent ran from the nest and the Doctor writes in this connection "I have yet to see one fly, as do other birds when disturbed at incubation. They all run, some showing greater alarm than others for the safety of their little thatched domicile." On June 23 a sixth nest, containing four nearly fresh eggs, of Bachman's Sparrow was found by an old negro, and brought by him to Doctor Avery, who writes as follows regarding it: " 'Doctor,' said he (the old negro) 'here am one dem bird nessis you tole me to fetch, ef I fin' any.' Sure enough he had spread upon the bottom of the nest four eggs of this Sparrow. The old man had been ploughing up a field that had not been cultivated for years, and the oxen, said he, as well as himself, were startled by the bird running from the nest. He stated that he took the bird for a snake, and explained to me that he was at first afraid to go to the spot where the Sparrow was seen, and that he struck at the place first several times with his whip, till he discovered the parent and then her nest." This seems to fully confirm the theory that *Peucæa æstivalis bachmani* imitates, as far as possible, the movements and hiss of a snake, when disturbed on her nest, and tries to protect it thereby, to some extent at any rate.

A day afterwards the Doctor in passing within thirty steps of this last-mentioned nesting site, flushed four Sparrows which he took for early birds of this species, probably hatched in April. They rose like a covey of Bob-whites, all together, and with a whirr. There seems to be little doubt but that two broods are raised in a season, if not more. Bachman's Sparrow is mainly terrestrial in its habits, though when flushed it often alights in trees. Frequently, when suddenly disturbed, it rises with an audible whir.

Doctor Avery writes me that they sing at all hours of the day, but their song is especially striking and attractive at twilight, commencing with a prelude of some sweet, soul-stirring sounds, then changing to a trill, louder and more melodious than that of the Field Sparrow. This prelude is varied, and relieves the song of monotony, the little musician seeming to endeavor to make himself as entertaining as possible by frequent changes in the introductory notes of his strain.

In order to show the radical difference in the structure of the nest of *Peucæa æstivalis* proper and *Peucæa æstivalis bachmani*, I will state that a nest of the first-mentioned species, taken near Gainesville, Florida, on May 21, 1887, by Mr. Frank M. Chapman, a reliable and well-known ornithologist, containing four eggs and positively identified, the female having been shot, and which is now in his collection (No. 858), a typical *P. æstivalis*, is thus described by him in a letter to the writer.

"This nest was placed beneath a scrub palmetto, a growth which everywhere here covers the ground, and was constructed almost entirely of fine dry grasses. It was well made and quite compact, and held well together when lifted from the ground. It was not arched over in any way, was perfectly round, with the sides or rims everywhere of equal height, in fact it was a symmetrical nest and well-proportioned." The eggs, of which three are now before me, kindly presented to the National Museum collection by Mr. Chapman, are pure white in color, slightly glossy, and rounded ovate in shape. They measure as follows. No. 23,042 Nat. Mus. Coll., .71 × .61, .74 × .61 and .71 × .60 inches. The eggs of *Peucæa æstivalis bachmanii*, all collected and presented to the National Museum by Dr. Wm. C. Avery, are likewise pure white in color, with less gloss than those of the preceding species, more of a dead white. They vary in shape from a rounded ovate to ovate, and measure as follows.

No. 23,611, taken May 8, 1888, nearly fresh when taken, measures as follows: .72 × .56, .75 × .55, .72 × .55, .71 × .55 inch.

No. 23,622, a single addled egg, found May 9, measures .71 × .60 inch.

No. 23,626, taken June 23, eggs nearly fresh, measures .76 × .60, .76 × .61, .74 × .60, .76 × .62 inch.

No. 23,628, taken June 6, measures .79 × .59, .76 × .58 inch.

The last set, No. 23,647, taken June 23, measures .75 × .57, .75 × .60, .77 × .61, .76 × .61 inch.

The average measurement of the eggs of *Peucæa æstivalis bachmanii* is about .74 × .60 inch.

Doctor Avery believes that Bachman's Sparrow is only a summer resident in the vicinity of Greensboro, Alabama, arriving early in the spring from a warmer latitude. He never met with it in winter, although a few individuals may spend the winter there.

NOTES ON THE BIRDS OF FORT KLAMATH, OREGON.

BY DR. J. C. MERRILL, U. S. A.

With remarks on certain species by William Brewster.

[*Concluded from p. 262.*]

Coccothraustes vespertina.—A common resident. Several large flocks arrived from the south early in March, and smaller ones were seen until the middle of May, after which only pairs and single birds were observed. During the spring I obtained specimens at short intervals, and from careful dissections of them am convinced that in this vicinity the bird is a late breeder, not depositing eggs before the latter part of June or the first of July. At this time they are generally to be found in the largest firs, and in these trees, rather than in pines, I think they build, at least about Fort Klamath. Indeed, I have twice watched pairs carrying some building material into a huge fir, but was unable to locate the nests exactly and, even if I had, should probably have been unable to get to them, great as the inducement would have been.

Their note is a loud whistling call that may be heard at a considerable distance, and which is often repeated. In winter the crops were filled with seeds and crushed buds, and often fine bits of gravel; in summer insects, and especially caterpillars, were generally found.

It is rather difficult to prepare good specimens of this Grosbeak, for the skin is very thin, tears easily, and many feathers drop out; when one is shot, and in falling happens to strike a branch, so many feathers are generally knocked out that it is not worth skinning. In winter, when there is snow on the ground, good specimens may be obtained by shooting only such birds as will have a clear fall from the branch they are on into soft snow.

There is considerable variation in the color of the bill, and this is independent of sex; in some the entire bill is a clear light apple-green, scarcely or not at all tinged with yellow; in others the maxilla is pale yellowish tinged slightly with green, the mandible being horn color, tinged with greenish yellow only at the tip and cutting edge, and there are many gradations between these extremes. I have seen none in which the bill was "dusky at the base," as stated in 'History of N. A. Birds,' and which is probably the result of drying.

Carpodacus purpureus californicus.—A single specimen killed March 1, one of the next species being also obtained by the same discharge into a small flock which had passed the winter in the valley.

Carpodacus cassini.—Cassin's Purple Finch appears to be a resident species, rare in winter, and arriving irregularly in spring in advance of the general migration of the species, after which it becomes very common.

Single birds were found April 1, in deep pine woods, their loud and beautiful song attracting attention to them as they perched singly on the tops of high dead trees; on this date a male, still in immature plumage, was obtained with difficulty. They did not become common until May 13, when they suddenly appeared in considerable numbers. The nests are placed near the tops of young firs and pines.

Loxia curvirostra stricklandi.—Rather common resident, breeding about the Fort and throughout the mountains. Though not shy they were restless, often taking long flights, and were not easily shot. [The single specimen taken by Dr. Merrill is inseparable, as far as I can see, from Colorado and Arizona skins. For remarks on the latter *vide* Bull. N. O. C., Vol. VIII, pp. 160, 161, and Auk, Vol. III, pp. 260, 261.—W. B.]

Acanthis linaria.—Common during the winter, many remaining till about the first of May.

Spinus ——— .—About the middle of August several families of a species of Goldfinch came around the buildings in the Fort, but I was about leaving and was unable to secure any of them for identification. They were very likely *S. tristis*, as this species is recorded by Dr. Mearns as occurring here. A few days later I found *S. psaltria* very common near Ashland on the other side of the range.

Spinus pinus.—Common resident, breeding abundantly in the surrounding mountains.

Poocætes gramineus confinis.—Common, arriving about the first week in April. Unlike my experience in Montana and other parts of the West, the Bay-winged Bunting is not so numerous here as is the Savanna Sparrow.

Ammodramus sandwichensis.—A male taken April 26, the only one seen. It was in a meadow near the marsh, and as it was flushed at once attracted attention on account of its large size as compared with the common form, which was very common in the same locality. [The single specimen sent me by Dr. Merrill seems to be typical.—W. B.]

Ammodramus sandwichensis alaudinus.—Very common summer visitor. [A young ♀ in first plumage, taken July 18, differs from the corresponding stage of *A. s. savanna* in being very much grayer, especially above, where the light edges of the feathers are grayish white with scarce a tinge of buffy or brownish. The dark streaks on the underparts are also fewer and more restricted.—W. B.]

Zonotrichia intermedia.—Common spring and fall migrant. *Z. leucophrys*, given by Dr. Mearns, I did not obtain.

Zonotrichia coronata.—This is much the most common of the Zonotrichias during the migrations, associating with the preceding species and with the Passerellas. It arrived in the spring a little later than *Z. intermedia*, but both species were common by the latter part of April. The song of *coronata* was first heard on May 11. Probably a few remain to breed, but I have not observed any of the genus at that season. They begin to return early in August.

Spizella socialis arizonæ.—First seen May 4, and common ten days later; breeds abundantly.

Spizella breweri.—Rather rare and local, but a few may be found in open brushy plains among sage and greasewood. The exquisite song of this species is utterly unlike the *Coturniculus*-like lisping trill of S. *pallida*, and is most often heard about twilight and dawn.

Junco hyemalis oregonus.—None were observed during the winter. A small flock arrived March 6, after which it soon became extremely common, but comparatively few remained to breed.

Melospiza fasciata heermanni.—A few pass the winter in dense thickets bordering the smaller streams, along the margin of which it finds an abundance of food when snow covers the ground. Migrants return early in March, and it soon becomes common, but is at all seasons closely confined to the brush near water. [The five Song Sparrows (including one in first plumage) taken by Dr. Merrill seem to be nearer *heermanni* than to any other form, although they incline somewhat to *guttata* and *montana* also. They are evidently intermediates connecting at least two and perhaps all three of the subspecies just mentioned.—W. B.]

Melospiza lincolni.—A single specimen, shot March 14, was with a troop of Mountain Titmice in a pine tree, the ground being still covered with snow. The species was not again observed until May 5, when a female was taken. Breeds not uncommonly among the willows bordering many of the valley and mountain streams, when its sweet, somewhat wren-like song is often heard.

Passerella iliaca unalaschcensis.

Passerella iliaca megarhyncha.—Both these forms occur as common migrants. While it is probable that the latter may breed in this vicinity, I obtained no evidence of its doing so.

Pipilo maculatus oregonus.—A pair seen and the male secured March 7, the snow being still deep. These Towhees seem to be decidedly rare about the Fort as but one other specimen was seen during the spring and summer, although there is much cover apparently just suited to them. [The male above mentioned has the rufous of the sides about as in Rocky Mountain specimens of *megalonyx*, but the white markings of the back, wings and tail are nearly as restricted as in true *oregonus*. Typical examples of the latter seem to come only from the coast of Washington Territory and northern Oregon, all the birds that I have seen from California being very like this Klamath specimen.—W. B.]

Pipilo chlorurus.—Rather common during summer, and not so closely confined to brush and thickets as are others of the genus. Besides its pleasant song and the alarm note, there is another, rarely heard and apparently only when the bird's curiosity is excited without alarming it; this is a loud and distinct *mew-wée*, which is very characteristic.

Habia melanocephala.—A male killed June 11, the only one seen.

Passerina amœna.—Quite common, arriving about May 20, and breeding among willows and manzanita bushes.

Piranga ludoviciana.—Arrives in the spring about the first of May, and soon becomes very common among the firs and pines, in which the brilliant plumage of the males shows to great advantage. The song is much like that of the Robin, but is more rapidly given. Here this Tanager is very tame and unsuspicious; it is an expert flycatcher, and also feeds much on the ground. The nests are usually placed on the horizontal branch of a fir or pine, sometimes but a few feet from the ground, at others fifty or sixty feet above it. One nest found just outside the Fort was in a young aspen about six feet from the ground; the foundation was a mass of dry twigs, the lining being of rootlets and horsehairs; the internal diameter was three, the depth one and a half inches. On June 20 the full complement of eggs was three, averaging .91 × .62 inches; the ground color is a clear green, sparingly spotted with brown which in one specimen forms a ring at the larger end.

Petrochelidon lunifrons.—Common, nesting abundantly in the buildings about the Fort.

Chelidon erythrogaster.—Common.

Tachycineta bicolor.—Arrived April 4 in small flocks, and was common by the middle of the month; breeds.

Tachycineta thalassina.—Very common at the outlet of Diamond Lake early in August. Not noted in the immediate vicinity of the Fort, but undoubtedly occurs there.

Stelgidopteryx serripennis.—A few pairs breed in the banks of the streams near the Fort, but there are few suitable places, as the edges of the streams are usually low and grassy. Nests examined June 18 contained half-fledged young; the burrows were about two feet in length, and were much larger than those dug by the Bank Swallow.

Ampelis cedrorum.—Three seen on May 25.

Lanius ludovicianus excubitorides.—Seen occasionally during autumn and early winter. [No specimens taken. The form should perhaps stand as *L. l. gambeli.*—W. B.]

Vireo gilvus swainsoni.—The Western Warbling Vireo arrives about the middle of May, two weeks later than does the next species, and both are very abundant during the summer; nowhere have I found any Vireo so common as are these species at Fort Klamath. They are readily identified by their notes, which are characteristic and quite unlike. The present species is partial to aspens, almost every group of which is the home of one or more pairs.

Vireo solitarius cassinii.—Unlike most Vireos this one, as observed at Fort Klamath, shows a marked predilection for pines and firs, and is found almost everywhere among these trees. It is also found, but much less frequently, in aspen groves with the Warbling Vireo. The nests are built in low manzanita or buck-brush bushes that grow throughout the pine woods.

Helminthophila celata lutescens.—First seen and several specimens obtained on May 5; they soon became common, and rapidly passed on to the north, though a few remained to breed.

Helminthophila ruficapilla gutturalis.—First taken May 26. The loud song of the males betrays their presence and abundance, but they are restless, shy, and very difficult to shoot. The song has some resemblance to that of the Yellow Warbler, but once recognized it cannot be mistaken. This species is quite common during the breeding season, preferring groves of aspens with pine trees growing among them. They feed mostly among the aspens, searching for insects after the manner of their allies; at intervals they fly up into the pines, but soon descend to renew their search for food, sometimes visiting the wild currant bushes, but rarely touching the ground. When alarmed, as they very easily are, the males move rapidly through the trees, often flying a hundred yards or more at once, and were it not that their constant song indicates their movements, it would be impossible to follow them. I have frequently followed one for half an hour or more before I could even catch a glimpse of it, and my pursuit of any particular one was more often unsuccessful than the reverse. Sometimes on being alarmed one would at once fly up into a lofty pine, and far out of reach of small shot would remain quietly on one branch, yet singing often, as long as I remained in the vicinity, and this it would do whenever I visited its especial haunt. On the whole the habits of the Calaveras Warbler in this locality are very characteristic, and in a somewhat extended field experience I have never found a land bird more wary and difficult to shoot. But as soon as the young leave the nest this extreme shyness disappears, and the parents are readily approached and observed as they busily search for food for their young family.

Dendroica æstiva morcomi.—Common, arriving early in May. One nest was found in a young pine, although many aspens, in which they generally build, were growing near.

Dendroica auduboni.—Extremely abundant during the migrations. A few males were seen at Modoc Point on the 8th and 9th of April, and at the Fort on the 15th; by the 20th they were quite plentiful. A second "wave" composed of both males and females, which latter had not previously been seen, arrived about the 4th of May, when they suddenly became more abundant than ever, bringing *D. æstiva morcomi* and *H. lutescens* with them. By the middle of the month there was a noticeable diminution in their numbers, and ten days later they were rather uncommon, but a few pairs remained to breed about the Fort and in the surrounding mountains.

Besides the common song Audubon's Warbler has another, quite different and more rarely heard, and which caused the sacrifice of several specimens to identify the species; this seems to be reserved for the middle of the day when, after a satisfactory morning's search for insects, the bird sits quietly for an hour or more on the same branch, occasionally uttering the notes referred to. On two or three occasions I have heard a very sweet and peculiar song by the female, and only after shooting them in the act of singing could I convince myself of their identity.

Dendroica townsendi.—On the 14th of May I shot a male that was searching for insects near the top of a fir.

Dendroica occidentalis.—A full-plumaged male taken May 12; the bill of this specimen was dark olivaceous, not "jet black" as stated in 'History of N. A. Birds.' It is probable that this and the preceding species, and also *D. nigrescens*, are not uncommon here during the migrations, but their habit of frequenting the upper third of the highest firs renders their collection a matter of great difficulty, and the height is too great to identify them by sight. During the month of June I frequently heard and saw a bird at the head of Fort Creek that was certainly [a *Dendroica*, and doubtless one of these three species, but it kept in the tops of the highest firs and pines and I was unable to shoot it; the song was something like that of a Chipping Sparrow, but harsher and more run together.

Geothlypis macgillivrayi.—First seen May 11, and soon became abundant, many remaining to breed. The song of the male is characteristic and rather sweet, unlike that of *G. philadelphia* and yet having a certain resemblance to it.

Geothlypis trichas occidentalis.—The habits of the Western Yellow-throat in this vicinity, as regards its favorite resorts, are quite unlike what I have elsewhere observed. Though the numerous streams offer it the same rank undergrowth along their swampy edges that it in other places prefers, yet it is rarely seen in such situations. A few are found among the low willows growing in the marsh, but its favorite haunt, and one in which it is very common, is among the tules in company with Marsh Wrens and Yellow-headed Blackbirds. During the nesting season the males frequently mount a few feet in the air, and exactly imitate the eccentric movements of the Yellow-breasted Chat.

Sylvania pusilla pileolata.—Several seen May 6, and extremely common a few days later. Breeds in considerable numbers in the swampy willow thickets along Wood River and Fort Creek, the loud, sharp notes of the males indicating their abundance.

Anthus pensilvanicus.—Common during the migrations.

Cinclus mexicanus.—Not uncommon resident.

Troglodytes aëdon parkmanii.—Common, but less so than I have found it in many parts of the West. [The single specimen in the Klamath collection must apparently be referred to *parkmanii* as now restricted, although its coloring is darker and browner than in *T. aëdon* instead of "lighter or more tawny" as should be the case withtypical *parkmanii*, according to Mr. Allen*.—W. B.]

Troglodytes hiemalis pacificus.—Common during autumn, and in winter until the commencement of the January storms, the snow soon covering its favorite brush piles and manzanita scrub, and probably driving it south; but I did not detect it in the spring on its way north. A pair were seen July 6 near the head of the east fork of the Des Chutes River, at an altitude of about fifty-six hundred feet. [Dr. Merrill's specimens are typical *pacificus*.—W. B.]

Cistothorus palustris paludicola.—Very common in summer among the tules in the marsh, and a few pass the winter in the same locality. In August several pairs with young were found among the rank marsh grass at the head of Diamond Lake at a height of over five thousand feet. The breeding habits here are much as they are in the East; the nests were usually among tules, more rarely among flags.

Certhia familiaris occidentalis.—In no part of the West have I found the Creeper so abundant as at Fort Klamath. During the winter every troop of Mountain Titmice, Kinglets, and Pygmy Nuthatches, and these were very numerous, was accompanied by two or three Creepers. In April they gradually became less common, many apparently going with the Nuthatches into the mountains. Several pairs bred in the immediate vicinity of the Fort, however, and during the winter I found several of their characteristic nests, hidden by loosened scales of bark, usually on pines but once or twice on aspens. On June 6 I noticed a pair feeding fledged young; one of the latter was at the entrance of a Woodpecker's hole in a pine tree about sixty feet from the ground, and was frequently visited by the parents with food. It is probable that in this cavity the brood passed the night, for I hardly think that the nest was in it, and the other young birds were in the surrounding pines. On the same day another pair were seen several times to pass under a large scale of bark on a dead pine at a height of about fifty feet; their nest was doubtless there, but it was inaccessible.

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* See the Auk, Vol. V, p. 164.

[The characters by which it has been proposed to separate the Creeper of the Pacific Coast region, under the name *occidentalis*, are strongly and uniformly presented by the series of eighteen specimens taken by Dr Merrill at Fort Klamath. Indeed, as Mr. Ridgway has asserted in reinstating the subspecies in the Manual (pp. 557, 558), *occidentalis* "differs quite as much from the typical (Eastern) bird as does the Mexican form, to which it cannot be referred."—W. B.]

Sitta carolinensis aculeata.—Common during winter, but breeding more commonly in the higher mountains than about the Fort.

Sitta canadensis.—About as common as *S. aculeata.*

Sitta pygmæa.—Very common during winter, the majority going higher up the mountains to breed, but to no great distance, and at all seasons it is more abundant near the Fort than either of the other Nuthatches. Dr. Coues, in his 'Birds of the Colorado Valley,' says that the iris of this species is black; in all the specimens I have examined the iris was brown. Here, as in other parts of the West, its habits are quite unlike those of *aculeata* and *canadensis*, a dozen or more being generally found together, noisy, restless, and actively searching for food near the extremities of pine and fir branches, often picking off insects while fluttering and poised in the air.

Parus gambeli.—Perhaps the most common resident species at Fort Klamath, and in winter seldom out of sight or hearing. No form of either *rufescens* or *atricapillus* was obtained, though carefully searched for. The Mountain Chickadee has all the habits of its allies, with perhaps a greater variety of notes. During the winter its hoarse *dee-dee* is the most common, but as spring approaches this is less frequently heard, being partially replaced by a variety of others. The most characteristic spring note, which is occasionally heard throughout the year, is *pe-wee*, as clear, soft and beautiful as that of the Wood Pewee, and which it much resembles. Early in April they begin to separate in pairs, but small flocks may be seen until May. As the nesting habits and eggs of this Tit are not very well known, I will describe the five nests that I found. The females usually sit very close, and when disturbed keep up a constant hissing, so much like that of some snakes that no prudent squirrel would venture to enter the hole.

A nest found May 25 was in an old Woodpecker's hole in an aspen stub about ten feet from the ground. Five fresh eggs, averaging .62 by .47 inch, lay *in* a thick bed of tufts of hair from some small mammal.

A set of six fresh eggs, taken June 1, average .65 by .51 inch. The nest was at the bottom of a *Colaptes* excavation in a partially dead aspen, the entrance being large enough to admit my arm. The usual thick mass of fur was at the bottom, and *in the middle of this mass*, as in the first nest, were the eggs. In the succeeding cases incubation had begun and the eggs were upon the nest lining, exposed as usual; it may be that this species is sometimes in the habit of burying its eggs in the lining until ready to sit.

Six eggs were taken June 2 from a nest in a rotten pine stump about three feet from the ground; there had been a natural opening in the bark and stump, and the cavity had been enlarged and shaped by the birds. The wide bottom of the excavation had been covered with a thick level bed of fur in which was a sharply cupped cavity for the eggs, which average .63 by .48 inch.

A fourth nest, found June 6, was in a Woodpecker's cavity in a pine stump about three feet from the ground. As I approached, the female appeared for a moment at the entrance of the hole, but returned to the nest, from which I had to lift her after splitting open the stump. The eggs were six in number, and average .64 by .47 inch.

A nest found July 4, at Corral Spring, was in a pine, and about six feet from the ground; the eight eggs average .66 by .50 inch.

A few feet from this nest was another of the same species containing young.

Of these five sets of eggs two are entirely unspotted; in two, one or two eggs are pure white, the others having faint light brown spots, mostly at the larger end; in the other set two of the eggs are quite unmarked, but the others have distinct reddish spots.

Psaltriparus ——— .—A Least Tit was rather common during the fall migration in August, but was not observed in spring. Although no specimens were obtained, I think that all of those seen were either *minimus* or *californicus*. Mr. Henshaw, however, found *P. plumbeus* "among the barren piñon hills near Carson City," Nevada.*

Regulus satrapa olivaceus. — Very common in autumn, and in winter until the middle of January, when stormy weather began and continued with scarcely an intermission until March. None were then seen until March 18, but they soon became as abundant as before, and so continued until about the middle of April; none were seen in the vicinity of the Fort after April 25. In July and August this Kinglet was found quite abundant in the mountains above 5500 feet, at that height entirely replacing the next species. The males were still in full song, and with the females were feeding their young. [Two specimens, both males, are nearest *olivaceus*, but still not typical of that form.—W. B.]

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* Wheeler's U. S. Geog. Surv. Rep. for 1879, p. 288.

Regulus calendula. — Very common during the migrations, arriving March 21 and numerous three days later. They continued in great abundance for about a month, when there was a diminution in their numbers. Many pairs breed around the Fort, apparently placing their nests in dense firs. On July 9, at Beaver Meadows, a female was noticed feeding six scarcely fledged young that were sitting close together on a dead twig of a pine tree, in which the nest was probably placed although I could not find it. In July and August this species was found in abundance in the mountains north of the valley up to a height of about five thousand feet. Very few of either species were seen in the next five hundred feet, above which only *olivaceus* occurred. These heights were determined on several mountains by barometric observations, and the distinct range of the two species was very noticeable.

Myadestes townsendii. —A male taken May 3, and another seen two days later. A few were noticed in July and August in the mountains, where they probably breed. No song was heard. In flight and attitudes this species reminded me much of a Bluebird.

Turdus ustulatus.—Arrived about May 20, a few nesting near the Fort and in suitable situations in the mountains. Its loud, sweet song was frequently heard about sunrise and sunset, but the birds were shy and difficult to shoot. A nest found June 8, containing four fresh eggs, was in a dense willow thicket, and placed on a horizontal branch about two feet from the ground.

Turdus aonalaschkæ.—A female taken April 29. Not again seen until May 11, when after a few days of cold and stormy weather it was found abundantly. They were silent, and rapidly passed on to the north, being seen for about a week only. The basal half of the mandible varies from pale flesh color to a decided yellow, but this is irrespective of sex. [Four spring specimens (one taken April 29, the other three May 11) are well within the maximum limits of size ascribed to *aonalaschkæ* (their wing measurements are: ♂♂, 3.50, 3.55, 3.55; ♀, 3.23 inches), but their coloring is very much paler than in any of the California examples before me and, in fact, quite as gray as in average Colorado specimens of *auduboni*. — W. B.]

Merula migratoria propinqua. — Rare during the winter. Arriving March 7, it became common in three or four days. By the first of May many nests contained their full complement of eggs.

Hesperocichla nævia.— From various sources I learned that this bird was rarely seen in autumn, but that in March it was generally very abundant and tame, coming about the houses in the Fort as plentifully and as fearlessly as the common Robin. I saw none in autumn, and in the spring observed a single specimen only, a female, which I shot April 13, although at both seasons I kept a sharp lookout for the bird.

Sialia mexicana.—First seen April 4, and three days later was common in small flocks. Breeds about the Fort in greater numbers than does the next species.

Sialia arctica.—Common migrant; arrived March 27 in considerable numbers. Breeds, but very sparingly, near the Fort; higher in the mountains it is common, and there replaces *mexicana*.

Tringa minutilla.—This species was accidentally omitted from the first instalment of the present paper. I took a single specimen July 10.

NOTES ON THE HABITS, NESTS AND EGGS OF THE GENUS *GLAUCIDIUM* BOIE.

BY CAPT. CHAS. E. BENDIRE.

The genus *Glaucidium* was instituted by Boie in 1826. Only two species and one additional subspecies are found within the limits of the United States, as far as is known at present. These are

Glaucidium gnoma Wagler, the Pygmy Owl.

Glaucidium gnoma californicum Sclater, the California Pygmy Owl.

Glaucidium phalænoides (Daud.), the Ferruginous Pygmy Owl.

The true *G. gnoma* is found in Mexico, throughout the middle province of the United States, north to Oregon (Fort Klamath and Camp Harney) and Colorado. *G. gnoma californicum* is restricted to the Pacific Coast proper, between San Francisco Bay and British Columbia, inclusive. These little Owls, I believe, are resident throughout the year wherever found.

The general habits of the Pygmy Owl are by this time pretty well known, and there remains little for me to add to their life history, that is really new. It is a well-established fact, that it is quite diurnal, and hunts its prey, to a great extent at least, during the daytime, its food consisting not alone of grasshoppers and other insects, as some of the earlier naturalists surmised, but also of birds and the smaller rodents, some of the latter considerably heavier than itself.

I presume that it is not at all uncommon throughout the entire mountainous and timbered portions of the West; but from its small size and retiring habits, generally being perched in dense evergreen trees, it is not often noticed by the naturalist, and usually only by accident. I have taken it personally in the Blue Mountains in Washington Territory, and in several places in Oregon, but have never met with more than one at a time. My specimens were, with but a single exception, all found in or near the pine timber. While hunting Sage Fowl (*Centrocercus urophasianus*) on the morning of Feb. 5, 1875, in the vicinity of Camp Harney, Oregon, I shot a female Pygmy Owl at least five miles from the nearest timber. It was perched on a large bowlder, lying at the foot of a basaltic cliff from which it had broken off, and allowed me to approach quite closely. It had just about finished its breakfast, furnished by a Western Tree Sparrow (*Spizella monticola ochracea*), as indicated by the feathers scattered about and on the rock. It was in prime condition and exceedingly fat.

The first of these little Owls, coming under my observation, was shot by Sergt. Smith, who used frequently to go gunning with me. On the morning of Dec. 14, 1874, we were out hunting Sooty Grouse (*Dendragapus obscurus fuliginosus*) along the southern slopes and amongst the foothills of the Blue Mountains, a few miles north of Camp Harney, and had been quite successful. The Sergeant was walking along the edge of a mesa (tableland), while I was about a hundred yards below him, hunting amongst some serviceberry bushes growing about half way up the slope of the hill, and in which Grouse were usually found feeding at that time of the year. Hearing the Sergeant fire (he could not be seen from where I was at the time), I called to him and asked what he had shot. His reply seemed at the instant rather strange to me. It was "Captain, I shot a baby Owl, riding on a rat; I have got them." Had I not known the Sergeant to be a strictly sober man, not at all addicted to drinking, I should have readily agreed with him, that he had them, and laid it to over indulgence in something stronger than water, on that particular morning; but when I climbed up to where he was standing, the matter was fully explained.

It appears that a tall old pine tree had been uprooted years ago by some of the heavy windstorms that occasionally sweep over that region, and the roots of it were lying partly under a younger and bushy tree of the same species, that was taking the place of the older one in the course of nature. The massive trunk of the old tree was free from limbs for about forty feet, and was slowly but surely decaying. A large-sized pocket gopher, who perhaps found a congenial home amongst the roots of the old tree, on hearing the noise the Sergeant made in his approach, had climbed up on to the trunk of the tree, possibly to get a good view of the intruder and to warn the balance of his family, when, quick as a flash, a little Pygmy Owl, that had been securely hidden among the branches of the growing pine, dropped down with unerring aim on its victim and fastened its sharp little talons securely into the astonished gopher's back. Sergeant Smith's attention was drawn to the performance by a squeak from the gopher which, in trying to escape, ran along on top of the fallen pine almost its entire length, making rather slow progress however, hampered by the Owl as it was, when the Sergeant fired, killing both. During this time, nearly a couple of minutes, the Owl sat upright on the gopher's back, never letting go its hold an instant, twisting its head nearly off the body in trying to keep an eye on the Sergeant, who was rapidly approaching, but apparently showing no uneasiness whatever. He told me that the whole thing was done in such a business-like manner, that it was evidently not the first ride of the kind this little Owl had so taken. It held on to its prey even in death. I published a short account of this occurrence at the time, in the Proceedings of the Boston Society of Natural History, Vol. XVIII, Oct. 6, 1875. Both specimens are in the National Museum Collection.

I also met with the Pygmy Owl on several occasions at Fort Klamath, Oregon. I remember quite distinctly seeing one (presumably the same individual) several times at various hours of the day sitting patiently, but wide awake, on a single long and slender willow branch overhanging Fort Creek, but a little distance from the Post. I refrained from shooting it, as I suspected it nested in the vicinity, and it would also have been rather difficult to secure. I can't say so positively, but think it used that particular perch for no other purpose than to catch frogs. The willow overhung a marshy, reed-covered spot, where the water was rather shallow, and which seemed to be a favorite resort for numbers of these batrachians. Small birds, of which there were numbers about in the immediate vicinity in the willow thickets bordering the stream, did not seem to resent the presence of the little Owl, and paid no attention whatever to it.

Its call notes may often be heard during the early spring months while mating, and usually shortly after sundown. Its love notes are by no means unmusical. They resemble to a certain degree the cooing of the Mourning Dove (*Zenaidura macroura*), like '*coohuh*, *coohuh*,' softly uttered, and a number of times repeated. Although I have not positively seen this bird while in the act of calling its mate, I am quite certain that the notes emanated from this little Owl and no other. I am familiar with the notes of the Acadian and Kennicott's Owls (*Nyctala acadica* and *Megascops asio kennicottii*), the only other of the small Owls at all likely to be found there, but their notes are different, and they were not met by me while stationed at Fort Klamath, Oregon.

Mr. Henshaw found the Pygmy Owls quite numerous in the southern Rocky Mountains, and states that they are rather sociable in disposition, especially during the fall months. He says that he has imitated their call and readily lured them up close enough to be interviewed. (See Auk, Vol. III, Jan., 1886, p. 79.) I am inclined to think that they are much more common there than further north.

In regard to the nesting habits of the Pygmy Owl, but very little is yet known, and as far as I am aware, but two nests, one containing eggs, the other young, have been taken.

Although mention is made in Baird, Brewer and Ridgway's 'History of North American Birds,' Vol. III, p. 85, that this Owl, according to J. K. Lord, lays two small eggs, white in color, early in May, I think the credit of the discovery of the nest and eggs of this species really belongs to Mr. George H. Ready, of Santa Cruz, Cala., who on June 8, 1876, found a nest containing three eggs, one of which was accidentally broken, in a deserted Woodpecker's burrow in an old isolated poplar tree, growing on the banks of the San Lorenzo River near Santa Cruz. The burrow was seventy-five feet from the ground. A short account of this find was published by me in the Proceedings of the Boston Society of Natural History, Vol. XIX, March

21, 1879, p. 132, and a somewhat fuller description of the same, by W. C. Cooper, can be found in the Bulletin of the Nuttall Ornithological Club, Vol. IV, April, 1879, p. 86.

The two eggs, of which drawings only are before me, are, according to these, ovate in shape, dull white in color, with a scarcely perceptible yellowish tinge. The surface is said to be quite smooth, and to have the appearance of having been punctured with a fine point over the whole egg. Judging from the drawings they are decidedly pointed for Owl's eggs, and perhaps somewhat abnormal in this respect. Their size is given as 1.18 × .90 and 1.17 × .87 inches. According to the latest classification these eggs would be referable to *Glaucidium gnoma californicum.*

During one of my absences from Fort Klamath, on official business matters, one of my men found on June 10, 1883, a burrow occupied as a nest by the true *Glaucidium gnoma*, which at the time it was first discovered must have contained eggs. The nest was not disturbed till the day after my return to the Post, June 25, when he showed it to me. The nesting site used was an old deserted Woodpecker burrow, in a badly decayed but still living aspen tree. It was about twenty feet from the ground. The cavity was about eight inches deep and three and a half wide at the bottom. This tree, with two others of about the same size, stood right behind, and but a few feet from a target butt on the rifle range, which had been in daily use since May 1, target firing going on from three to four hours daily. All this shooting did not seem to disturb these birds, for the first egg must necessarily have been deposited some two or three weeks after the target practice season began, but the strangest thing is that the Owls were not discovered long before, as two men employed as markers were constantly behind the butt in question during the firing and directly facing the entrance hole of the burrow. When the nest was shown me I had it examined, and much to my disgust found it to contain, instead of the much coveted eggs, four young birds from a week to ten days days old perhaps. I took these; two of them are now in the National Museum, the remaining two, in Mr. William Brewster's collection at Cambridge, Mass. The cavity was well filled with feathers of various kinds, and contained, besides the young, the female parent and a full grown Say's chipmunk (*Tamias lateralis*) that evidently had just been carried in, as it was not touched yet. The cavity was almost entirely filled up by the contents mentioned.

Judging from these accounts, the only reliable ones I know of, it would appear that the Pygmy is one of the latest of the Owl tribe to begin nidification, and it is not at all probable that more than one brood is raised in a season, or that in both the instances mentioned the first set of eggs had been destroyed. The young Owlets, two of which I kept alive for several days, made a kind of chirping noise like a cricket. The number of eggs to a set is probably never more than four.

Glaucidium phalænoides *Daud.* FERRUGINOUS PYGMY OWL. — This widely distributed species was first described by Prince Max z. Wied in 1820. It inhabits the whole of tropical America (the West Indies excepted), and is found to the northward, along the southwestern border of the United States, occurring in southern Texas and Arizona. It was first added to our fauna by the writer, who took several in the heavy mesquite thickets bordering Rillitto Creek, near the present site of Camp Lowell, in the vicinity of Tucson, Arizona, in 1872. The first specimen was taken Jan. 24, 1872, showing that it is a resident throughout the year; other specimens were obtained during the following spring and summer. Unfortunately I was not an adept in taxidermy then; the skins made by me in those days looked as if they had passed through the jaws of a hungry coyote, and they were only useful in determining species. Like *G. gnoma*, this little Owl is quite diurnal in its habits. Its call, according to my own notes, is '*chu*, *chu*, *chu*,' a number of times repeated, and is most frequently heard in the evening. According to Mr. F. Stephens, its note is a loud '*cuck*' repeated several times as rapidly as twice each second. He further states that at each utterance the bird jerked his tail and threw back his head. Occasionally a low chuck, audible for only a short distance, replaced the usual call. Mr. Stephens's notes, come perhaps nearer the mark than my own; I know him to be an exceedingly careful, conscientious, and reliable observer. According to Prince Max z. Wied in Burmeister's 'Thiere Brasiliens,' Vol. II, 1856, p. 142, its call is said to be '*keck*, *keck*, *keck*.'

The best account of the life history of this little Owl, is found in the 'Journal für Ornithologie,' Vol. XVII, 1869, pp. 244, 245, under 'Notes on the Natural History of the Birds of Brazil,' by Carl Euler.

According to this authority, small as the Ferruginous Pygmy Owl is, it has been known to carry off young chickens, and he was informed by the natives that it even attacked Jacú-hens (*Penelope*), a bird of greater size than domestic fowls. It was stated to him that the little Owl fastened itself under the wings of the latter, gradually tearing it to pieces, and wearing it out and eventually killing it. I am aware, from personal observations, that some of our small Owls are the peer, as far as courage is concerned, of the noblest Falcon ever hatched, but I should not quite care to father that story. Carl Euler says further that in captivity, when fed on birds, it always carefully removed all the larger feathers from the carcass, before beginning its meal. Also that it was not at all afraid of light, and that he met with it several times during bright sunshiny days, sitting on perfectly bare and leafless trees. He gives its call note as '*khiu*, *khiu*.' Apparently none of us mentioned here, agree on the call note of this Owl, and I leave it to the reader to take his choice.

Euler surmises that it rears two broods a season, one in October, the other in December. He met once in March, a family of four, two adult and two young, sitting close together on a limb of a tree, waiting, as he says, for twilight. The nest is said to be made in hollow trees; no mention is made of the eggs having been found, however, and I cannot find any description of them in any of the works accessible to me.

A nest containing two fully fledged young, found by me in an old mesquite tree in the spring of 1872, in a chaparral thicket near Camp Lowell, and referred to by me at the time as being that of *Micrathene whitneyi*, may possibly, and probably, have been one of this little Owl, as the Elf Owl seems to confine itself in its nesting sites to burrows in giant cactus (*Cereus giganteus ?*), so far as known.

An additional new subspecies of *Glaucidium* has recently been described in 'The Auk,' Vol. V, April, 1888, p. 136, by William Brewster, under the name of *Glaucidium gnoma hoskinsii* Brewster, Hoskins' Pygmy Owl, from the Sierra de la Laguna, Lower California, and which properly also belongs to our fauna. Nothing whatever is known respecting its habits as yet.

A SUMMARY OF OBSERVATIONS ON THE BIRDS OF THE GULF COAST OF FLORIDA.

BY W. E. D. SCOTT.

THE observations recorded in the following pages are based on work covering, in period of time, the entire winters of 1879-80, 1886-87, and 1887-88; the spring, summer and autumn of 1886, the spring and autumn of 1887, and the entire season of 1888 up to August 1, the date of this writing. All of these seasons have been spent at some point on the Gulf Coast of Florida south of Cedar Keys, and from that point to Key West is the area it is proposed to treat of. Reference will also be made to work done during January, February, and March, 1876, at Panasoffkee Lake in Sumpter County, and to several short trips inland to minor points.

Where information has been obtained through friends and fellow-workers in this region it will be noted as coming from such sources; and no information but such as seems absolutely reliable has been admitted into the pages that follow.

Colymbus auritus. HORNED GREBE.—During the months of December and January, winter of 1887-88, this species was abundant in large flocks in the Gulf of Mexico, off the coast of the Counties of Hillsboro and Pasco. These flocks were most numerous from about a mile and a half to three miles off shore. Single birds and pairs often came closer to the land. I have no records of the species from any of the fresh water ponds, some of which are very close to the coast, where *Podilymbus podiceps* is to be found very commonly.

Podilymbus podiceps. PIED-BILLED GREBE.—A common winter visitor, arriving early in the fall and remaining till late in March in numbers. I have notes of its occurrence in each of the months of June, July, and August, and though rare at this time of year, I think it will be found ultimately to breed in Hillsboro County. Most of the migratory birds assume full nuptual plumage before leaving for the north. The species is abundant in winter in both fresh and salt water at the several points I have visited throughout the State.

Urinator imber. LOON.—This species is common during December and January on the Gulf from Cedar Keys at least as far south as Tampa Bay. Though most of the birds seem to prefer the waters of the Gulf, yet I have many notes of their occurrence on the Anclote River, several miles above its mouth. The birds that I have examined from these localities are mostly young birds of the year, and I have never seen an individual from these points in full plumage.

Urinator lumme. RED-THROATED LOON.— Of not infrequent occurrence in the colder months, December and January, near the mouth of the Anclote River. I also took one near Clearwater Harbor in February, 1880.

Larus argentatus smithsonianus. AMERICAN HERRING GULL.—A rather common winter visitor on the Gulf Coast. I observed the species on May 21, 1886, just outside of Clearwater Harbor on the Gulf. (See Auk, Vol. IV, No. 4, October, 1887, p. 274.) Most of the individuals observed or taken have been in the gray plumage.

Mr. John W. Atkins of Key West writes me: "In the winter and early spring the Herring Gull is very plentiful in the harbor," referring to the harbor at Key West.

Larus delawarensis. RING-BILLED GULL.— A rather common winter visitor on the Gulf Coast, and I have noticed it in numbers near Clearwater Harbor as late as May 21, 1886. (See Auk, Vol. IV, No. 4, October, 1887, p. 274.) The birds observed have been about equally divided in regard to immature and full plumage.

Larus atricilla. LAUGHING GULL.— An abundant fall, winter, and spring bird on the Gulf Coast, and breeds, but so far as I am aware, not abundantly. See notes made in May at Charlotte Harbor, Auk, Vol. IV, No. 4, October, 1887, pp. 274, 278, 279. Mr. Atkins of Key West tells me that this Gull is a common resident and breeds both at Key West and in the vicinity of Punta Rassa. From the same source I learn that this species breeds at the Dry Tortugas.

Larus philadelphia. BONAPARTE'S GULL.—This species is not common on the Gulf Coast of Florida so far as I am aware. I took a single individual at Panassoffkee Lake, in Sumpter County, in the winter of 1875-76, and found a few at the mouth of the Withlacooche River in December and January, 1879-80. I have no record of it in the immediate vicinity of Tarpon Springs, and the only record south of that point is of a single bird, apparently immature, taken at John's Pass, Hillsboro County, December 17, 1886.

Gelochelidon nilotica. GULL-BILLED TERN.—Apparently rare on the portions of the Gulf Coast visited. The only record that I am aware of is that of a male in winter plumage taken at John's Pass (see Auk, Vol. IV, No. 2, April, 1887, p. 133). Also see 'Mammals and Winter Birds of East Florida,' J. A. Allen, Bull. Mus. Comp. Zoöl., Vol. II, p. 366, April, 871.

Sterna maxima. ROYAL TERN.—A resident species, more abundant in winter, and breeds commonly. On the low sand keys at the mouth of Tampa Bay the breeding season begins about the middle of May, and is at its highest three weeks later.

Sterna sandvicensis acuflavida. CABOT'S TERN.—A migrant, and very abundant as far north as Clear Water. The birds are not to be found as far north as Tampa Bay in the winter, and if they occur on this coast at all at that season it is much to the south of Charlotte Harbor. I found the first migrating north at Gasparilla Key early in May, and I have reason to believe that they arrive at this point about May 1 to 5, becoming common in a few days.

At John's Pass I found them in great numbers about June 1, 1886. The percentage of adult birds to those in immature plumage at this time of the year is quite remarkable. On June 3, 1886, at John's Pass I took a series of fifty-nine of these birds and saw many hundreds more of them. Of the fifty-nine only six were in full plumage, and though all of the others were at least a year old, not a few of them appeared from dissection as if they would not have bred till at least another season. They breed in large numbers on the sand beach near the point above indicated in June, and are still abundant in the vicinity till about the last of September when they begin to disappear. On September 20, 1886, I secured an additional series of the species at the point in question. The birds had by that time all assumed winter plumage except the young birds of the year. These were in seven cases still in the *first* plumage, and not quite fully grown, indicating that probably more than one brood is raised, and showing how late in the summer the last broods are hatched out.

Since writing the above, Mr. Atkins of Key West tells me that Cabot's Tern is quite common in Key West Harbor in winter.

Sterna forsteri. FORSTER'S TERN.—A rather common winter resident (see Bull. Nutt. Orn. Club, Vol. VI, No. 1, January, 1886, p. 21), and the species was observed by me at Casey's Pass as late as May 28, 1886, still in winter plumage. (See Auk, Vol. IV, No. 4, Oct., 1886, pp. 274, 278.) Later, June 3, of the same year, I found the species abundant at John's Pass and still in flocks, many of the birds being in winter plumage. I am inclined to think that the species will be found to breed in small numbers near this locality on the Gulf Coast. Mr. Atkins took the species commonly at Punta Rassa on July 18, 1886. Mr. Atkins also finds this a common species at Key West in the winter.

Sterna hirundo. COMMON TERN.—The Common Tern is an abundant bird during the spring, but I have no records of its occurrence in the winter months north of Key West. During May and the early part of June the birds were abundant in flocks from Boca Grande, the main inlet to Charlotte Harbor, to John's Pass. The majority of the birds were in the plumage of the first year, and had the peculiar marking of that phase of plumage, a prominent black or dusky band just back of the bones of the forearm. About one bird in ten was in full plumage or assuming it, and a few birds taken were moulting. Mr. Atkins of Key West has found this species not uncommon at Punta Rassa in midsummer (July 18, 1886), and it seems probable that it breeds at some point on the Gulf Coast.

Sterna dougalli. ROSEATE TERN.—The only record of the species that I have is a male bird, adult, No. 4860, taken at John's Pass September 24, 1886. The bird is in worn plumage, and had not completed the fall moult.

Sterna antillarum. LEAST TERN.—A common migrant, and breeds in numbers at almost every point on the coast that I have visited. The birds arrive at Tarpon Springs early in April, many pass on north, and the breeding season is at its height late in May. They remain till late in September commonly, and a few are to be seen until about November 1. I only noticed a single bird among many hundreds of this species during the month of May, 1886, that still retained the plumage of the first year.

Referring to this species on the Island of Key West, Mr. Atkins says: "I have found the Least Terns breeding on the beach of a partially dried-up pond in the woods."

Hydrochelidon nigra surinamensis. BLACK TERN.—This species was abundant in large flocks at John's Pass in the early part of June, 1886, and equally common when I visited this point in September (12-24) of the same year. About thirty per cent of the birds observed in the spring were in adult breeding plumage. Mr. Atkins obtained the species in midsummer at Punta Rassa commonly.

Rynchops nigra. BLACK SKIMMER. — An abundant migrant and common resident at points visited on the Gulf Coast. Many breed at suitable localities.

In concluding my remarks on the Gulls and Terns of the Gulf Coast, I wish to present to the reader some facts that have only recently been fully authenticated by me, and which of course contradict in a certain sense some of the foregoing remarks as to the points at which certain of the species enumerated breed. Having heard of the wholesale destruction of the Gulls and Terns on their breeding grounds at the mouth of Tampa Bay on Passage Key, and on the low sand islands and bars off Pass Agrille, I determined to look into the matter. I was familiar with both breeding places where only a few years ago countless hosts of Terns, Gulls, and Black Skimmers nested.

On July 2 of the present year I sent Mr. W. S. Dickinson and Mr. Parkes to carefully look over these breeding grounds and to report to me in detail. For this work Mr. Dickinson was well fitted and capable, having had very considerable experience, working with me and under my direction for an entire year.

The two gentlemen were gone six days and though the results of the expedition were negative in one sense, they were conclusive and positive in another.

Not a Tern of any kind was found breeding or with young at any of the points in question. The only Terns seen were about fifty *Sterna maxima*, a number of *S. antillarum*, twelve or fifteen Forster's or Common Terns that were so wild that it was impossible to identify them, and a flock of some three hundred *H. nigra surinamensis*. About fifty Black Skimmers were breeding and had *fresh* eggs on the beach near Pass Agrille, and a dozen were found nesting at Passage Key.

This was *all* that was left of a breeding colony that had once numbered its tens of thousands, and the evidence tells its own story.

Not a single Cabot's Tern *was seen* where they had once bred in great numbers, and the birds that were seen were so wild and shy as to make identification a very difficult task.

These results have been brought about by the persecutions of plume hunters, for there had been great demand for the Terns for hats, and by the depredations of egg hunters from Manatee, who find this a point from which in years gone by they have been able to supply the markets of the towns near by with *eggs for food.*

The only Gulls that were noted on this expedition were a few Laughing Gulls.

These breeding grounds are all easily accessible from Point Pinullas and Prof. H. A. Smeltz, a resident till recently of that locality, assures me that he has known the plume hunters of that region to ship to the New York dealers *seven barrels* of plumes and flat skins in a single week during the breeding season of the Herons, Gulls, and Terns; and I know personally of a contract made by a New York house with two men of that locality for 30,000 Terns' skins to be delivered during a single season.

The methods of the egg hunters are of too great interest to be passed over. The beaches where Terns' and Gulls' eggs were laid in great quantities, were carefully scraped with boards used as brushes. *All* the fresh eggs were selected after being swept into the water and those that had been incubated allowed to drift away with the tide. But the work was really done so that the egg robber might the next day get *all* the eggs that had been laid in the interval.

Anhinga anhinga. ANHINGA.—A common resident, breeding from late in March till the middle of July in the vicinity of Tarpon Springs. The breeding season is, however, at its height in this locality about the last week in April. The birds do not seem so gregarious at this or other seasons of the year as do the Cormorants, and it is unusual to find more than a dozen pairs at a 'rookery,' from two to four pairs being the ordinary contingent. Almost every fresh water pond has its pair or more, and on the larger lakes and streams they are plentiful. I have yet to find the species breeding in a salt water rookery, or to see one in the pure salt water of the Gulf, though they are occasional on the brackish bayous that connect with the Gulf.

Phalacrocorax dilophus floridanus. FLORIDA CORMORANT.—An abundant and conspicuous species at all seasons near the coast and on the larger sheets of fresh water. Breeds in great colonies at suitable points near both fresh and salt water, beginning to lay in the vicinity of Tarpon Springs late in March and early in April. Generally two or three eggs are laid, and two broods are reared.

Pelecanus erythrorhynchos. AMERICAN WHITE PELICAN.—Though observed in flocks of varying size throughout the year in the vicinity of salt water, I have no records of the species breeding at any point visited. The breeding, if it occurs in the region in question, seems unknown to any of the native hunters I have talked to.

Pelecanus fuscus. BROWN PELICAN.—A common resident at most points on the Gulf, and breeds in colonies, generally of great size, on the mangrove islands in April, May, and June, according to the many notes accumulated.

Fregata aquila. MAN-O'-WAR BIRD.—A resident species, but much more abundant during the warmer months of the year. They do not, so far as I am aware, breed at any point north of Charlotte Harbor, nor at that point.

Wherever there is a salt water rookery, particularly of Pelicans or Cormorants, these birds congregate in great numbers during the time the young birds are being reared, and at this season act much as do the parasitic Gulls, stealing food from young and old birds. I have frequently seen them preying on Gulls and Terns when fishing, just as the Jaegers do.

Merganser serrator. RED-BREASTED MERGANSER.—A common winter resident at least as far south as the mouth of the Anclote River. Here they arrive about the first of November and remain till late in February, and a few are to be seen in March. They frequent almost exclusively regions where oyster bars abound, especially such bars as are left bare or nearly so by each receding tide.

Lophodytes cucullatus. HOODED MERGANSER.—A common winter resident, and some breed. Unlike *M. serrator*, these birds seem to prefer the ponds of fresh water near the coast, and I have never seen one in the Gulf, though back in the country a mile from the salt water they are common.

Anas boschas. MALLARD.—The Mallard does not seem as abundant at the several points visited on the Gulf Coast as it is on the East Coast, according to authorities. In the region about Tarpon Springs, though not rare, it is not nearly so abundant as some of its congeners. Here it is a regular winter visitor.

Anas fulvigula. FLORIDA DUCK.—Resident, but not at all common, in the region about Tarpon Springs. At points on old Tampa Bay, I am informed by Mr. Stuart of Tampa (who is well acquainted with the bird), it is rather common and breeds.

I met with the bird once only in the Charlotte Harbor region, on May 21, 1886, when a single pair were seen, and so close at hand that there could be no mistake as to their identity.

Anas americana. BALDPATE.—In December, 1879, I took at the mouth of the Withlacooche River an adult male of this species in full plumage. This is the only record I have of its occurrence on the West Coast, where it is apparently rare.

Anas carolinensis. GREEN-WINGED TEAL.—A not very common winter visitor in Hillsboro County. Frequents only fresh water in the vicinity of Tarpon Springs. At Panassoffkee Lake in the winter of 1875–76 this bird was very abundant.

Anas discors. BLUE-WINGED TEAL.—Rather more common in fall, winter and spring than the last; this in the region about Tarpon Springs, but at Panassoffkee Lake the reverse was true.

Dafila acuta. PINTAIL.—A not uncommon winter visitor, at least as far south as Tampa Bay. I have records of its occurrence each winter that I have spent in the vicinity of Tarpon Springs, and it was a common Duck in the region about Panassoffkee Lake, Sumpter County, during a visit I paid to that locality in the winter of 1875-76.

Aix sponsa. WOOD DUCK.—A common resident at all points visited, and breeds in numbers, but is apparently more common in the colder months of the year.

Aythya affinis. LESSER SCAUP DUCK.—An abundant winter visitor in the regions near the coast, at least as far south as Charlotte Harbor. The birds begin to arrive early in November about Tarpon Springs, are soon common, and remain in numbers till about May 1, after which small flocks are not uncommon till about the 20th of that month, when all seem to have departed.

On May 5, 1886, I noted three Ducks which I now believe to have been this species, though then recorded as *Aythya marila nearctica*, near the mouth of the Myiakka River at the head of Charlotte Harbor. (See Auk, Vol. IV, No. 2, April, 1887, p. 141.)

On May 9, 1886, at a point only six miles north of Punta Rassa I saw two large flocks, not less than two hundred in each, of this species, and killed birds for identification from each flock.

This was also the most abundant species at Panassoffkee Lake, Sumpter County, during the winter of 1875–76.

Aythya collaris. RING-NECKED DUCK.—Rare on the Gulf Coast about Tarpon Springs where I have but a single record of its occurrence. At Panassoffkee Lake in the winter of 1875–76 it was not at all uncommon, and was associated in flocks with the foregoing species.

Glaucionetta clangula americana. AMERICAN GOLDEN-EYE.—On January 9, 1888, while in a boat fishing at the mouth of the Anclote River, a single individual of this species flew by within twenty yards, making the identity certain. It was a male bird in high plumage.

Charitonetta albeola. BUFFLE-HEAD.—I have a number of records of the occurrence of this species on the Gulf Coast during the winter months, but it is even at this season a comparatively rare bird, and more frequently represented by immature individuals.

Erismatura rubida. RUDDY DUCK.—Of rather frequent occurrence in the vicinity of Tarpon Springs in winter months.

Chen hyperborea nivalis. GREATER SNOW GOOSE.—The record already published in 'The Auk,' Vol. V, No. 2, April, 1888, p. 183, is the only authentic occurrence that has come to my knowledge to date. I am indebted to Mr. J. W. Atkins, of Key West, for the information then published.

[*To be continued.*]

TESTIMONY OF SOME EARLY VOYAGERS ON THE GREAT AUK.

BY FANNIE P. HARDY.

Mr. Lucas, in his recent article on the Great Auk, asks if the "great Apponatz" of Hakluyt may not be either a misprint or a wrong translation of "*grasse Apponatz*," the fat Apponatz; and further on supposes, for the sake of a question, that the Apponatz is the Razor-bill, as if the "Apponatz" and the "great Apponatz" were two different birds. That there is no mistake involved, and that but one bird, the Great Auk, is meant, can be shown by comparing the certain statements of early travellers.

Unfortunately the notes from which I draw my material were taken for quite another purpose, and contain no extracts from Cartier, and no copy of his works is at present accessible; but as every good library should contain at least the Tross reprints of the 'Bref Recit et Succinte Narration,' the 'Discours du Voyage fait (en 1534)' and the 'Relation Originale,' his exact words can be very easily determined. A few of the very best libraries in the country may possibly contain the following as well: 'A short and ‖ brief narration of the two ‖ Navigations and Discoueries ‖ to the Northwest partes called ‖ Newe France :‖ First translated out of French into Italian by that famous ‖ learned man Gio : Bapt : Ramutius, and now turned ‖ into English by John Florio : worthy the rea ‖ ding of all Venturers, Trauellers ‖ and Discouuerers' ‖ etc. This book, published in 1580, is an English translation of Cartier's work, and is in all probability the one quoted by Hakluyt.

While these four books would decide the question of *grande* and *grasse*, far more valuable as evidence is a quotation from one of them made by Marc Lescarbot in 1609. This I have not compared with Cartier, but probably, like most of the quotations of that time, it is a paraphrase rather than a verbal reproduction. Certainly it is much modernized in spelling. Yet that it is strikingly accurate anyone may see by comparing the French as here given with the English translation from Hakluyt, quoted in 'The Auk' for April, p. 129. The great value of this extract as evidence, lies in the fact that Lescarbot had travelled extensively in this country, being as he said himself "temoin oculaire d'une partie des choses ici recitées" ; and so able from his own experience to correct any misprint in Cartier's work ; and moreover would not have hesitated to do this, as anyone who is acquainted with the calm way in which these early travellers appropriated each other's observations will admit. The extract is as follows :

" . . . .et approchames de trois iles, desquelles y en avoit deux petites droites comme un mur, en sorte qu'il estoit impossible d'y monter dessus, et entre icelles y a un petit escueil. Ces iles estoient plus remplis d'oiseaux que ne seroit un pré d'herbes, lesquels faisoient là leur nids, et en la plus grande de ces iles y en avoit un monde de ceux que nous appellions Margaux, qui sont blancs et plus grands qu' Oysons, et estoient separez en un canton, et en l'autre part y avoit des Godets ; mais sur le rivage y avoit de ces Godets et *grands Apponaths* semblables à ceux de cette ile dont nons avons fait mention [probably his Ile des Oyseaux, No. 3 of his chart ; this Ile des Margaux is No. 46]. Nous descendimes au plus bas de la plus petite, et tuames plus de mille Godets et Apponaths et en mimes tant que souloumes en noz barques, et en eussions plus en moins d'une heure remplir trente semblables barques. Ces iles furent appellées du nom de Margaux." (Lescarbot, Histoire de la Nouvelle France, Vol. I, p. 231 et seq., ed. 1609 ; p. 233 et seq., Tross edition.)

It is extremely improbable that the same verbal error should find its way into the three different versions of Cartier and also into the four editions of Lescarbot published during the latter's lifetime. Hence if Hakluyt, quoting a translation, said "great Apponatz," and Lescarbot, quoting Cartier either directly or indirectly, said "grands Apponaths," the chance that Cartier ever said or meant to say "grasse" is exceedingly small. Whatever the bird was, we must admit that it impressed the French as being large ; and we must remember that this is an absolute, not a relative term.

In one or two places Mr. Lucas writes "Great Apponatz," beginning the adjective with a capital, as if there might be a 'Lesser Apponatz,' in comparison with which this was large. That this could not have been the case, may be seen from the fact that Apponatz, or Apponath, was an Indian name, not yet naturalized, so that any adjective attached must have been purely descriptive, never distinctive in its use. For any other bird somewhat resembling this, the French would have adopted the Indian name already applied to it, instead of transferring this. But there are other reasons why Apponath can refer to the Great Auk only. Later, we find that the bird had French names given it, and Apponath was retained only as a synonym. Frère Gabriel Sagard Theodat, in his 'Grand Voyage du Pays des Hurons' (Paris, 1632), speaks of the bird as Guillaume, Tangeux, or Apponath, stating that the latter is the Indian name for it. He describes this bird as being "large as a goose," "black and white," "with a short tail and little wings." Unquestionably, this is the Great Auk, and his use of the word Apponath is such that it must have been applied to this bird only. Aside from this, there is another reason, partly negative, but having great weight with those best acquainted with the zoölogical observations of this age, why the term Apponath could not have included the Razor-bills. There is no evidence, I think, that the French voyagers ever noticed the difference between the Razor-bills and the Murres; I am not aware that any of the early English observers made the distinction. The points most important in scientific classification were passed by unnoticed, differences of size, color and habit forming the basis of their distinctions. To them, birds as near alike in size, figure, habits and general coloration, as the Murres and Razor-bills, would be regarded as one and the same. It is almost a certainty that the Godels (the Godetz of Cartier, Godets and Godes of Lescarbot) which Sagard describes as similar to the Apponath but smaller, include both the Murres and Razor-bills. Another reason for the term Apponath not referring to the Razor-bill is that it is everywhere spoken of as being fat, "excessivement gras." Murres and Razor-bills, so far as my personal experience goes with specimens killed in winter, are, contrariwise, excessively lean, being shaped somewhat like a toy Noah's Ark. But the Apponath, on the other hand, is invariably described as fat and oily; and the term Tangeux which Sagard says was the sailor's name for the Guillaume or Apponath, although not in any dictionary which I have consulted, seems to be equivalent to "lumpers," and to imply that the birds were short and fat. What Guillaume signifies, not even Trevoux hints at. John Josselyn in his 'New England's Rarities Discovered,' etc. (London, 1672), describing the Wobble, which is undoubtedly the

Great Auk, calls it "an ill shaped Fowl, having no long feathers in their Pinions, which is the reason they cannot fly, not much unlike a Pengwin; *they are in Spring very fat*, or rather oyly, but pull'd and garbidg'd, and laid to the fire to roast, they yield not one drop."

More evidence might easily be collected from the narrations of these early travellers, but in dealing with them care has to be exercised to see that they are not quoting some earlier traveller without giving him the credit due him.

As to the Great Auk breeding on the New England coast, the statement of Josselyn already quoted, that they were taken at Black Point (which was near Portland, Maine) *in the spring*, is an indirect testimony, the stronger for being undesigned. Again in Archer's 'Account of Gosnold's Voyage to Cape Cod' made in the spring and summer of 1602, he mentions "seeing petrels, coots, hagbuts, *penguins*, mews, gannets, cormorants, gulls," etc. These birds were seen in the months of May and June in the region of Cape Cod; hence it is reasonable to suppose that the Penguin, or Great Auk, was breeding there at that time. Again, Brereton in his 'Account of the Voyage of Gosnold to Virginia' speaks of the birds of the country, among which he mentions "eagles; hernshaws; cranes; bitterns; mallards; teals; geese; *penguins;* osprays and hawks; crows; ravens; mews; doves; sea-pies," etc. Gosnold arrived in Virginia, April 26, 1607, and Brereton's account was published the following year, so that these "penguins" may have been seen during the winter, though it is fully as probable that the list was made soon after their arrival in the country. Throwing this out as doubtful, at least two good references have been given to show that the Great Auk was present on our coasts during the summer. If they were there at that time, what could they have been there for unless to breed?

In his article in 'The Auk,' Mr. Lucas says: "As for the bones found in shell-heaps, they are probably those of birds taken during their migrations southward, for the Great Auk was doubtless formerly as common on the New England coast during the autumn and winter months as the Razor-bill is now." This certainly is a fair conjecture, and may be the correct one yet; considering the references already given which show that the Great Auk was, for a period of seventy years at least, a summer resident, and also taking the formation of the shell-heaps into account, it is quite as probable that these were summer specimens. For, the popular opinion to the contrary, I can show the best of reasons for believing that nineteen-twentieths of all the clams and oysters represented by our shell-heaps were taken and shelled during the summer months; that the Indians, instead of living on the spot the year round, came down the rivers in the summer in large numbers and made a business of gathering clams and oysters; and that, instead of eating these on the spot, they dried them in large quantities and carried them back up river and into the country for winter food. If this be the correct solution of the formation of the shell-heaps, these heaps must have accumulated rapidly during the summer, and slowly (for undoubtedly some Indians remained there the year through) during the rest of the year. Hence, most of the bones found in the heaps are the kitchen refuse of those engaged in shelling clams for winter use; hence, also, if the bones of the Great Auk are found in numbers proportionate to the bones of other kinds of animals, they are, presumably, the remains of birds taken by summer occupants of the kitchen middings and were not fall and winter specimens. That this is not mere theorizing the statements of Archer and Josselyn show: for if the birds were on the coast in summer at a date when the shell-heaps were approaching their completion, it is not illogical to suppose that they were at least equally abundant at the same season while the shell-heaps were growing most rapidly; and if the shell-heaps received nearly all their additions during the summer months, as can be shown to be true of the Maine heaps, the majority of the Great Auk bones found in them may be confidently set down as the remains of birds who had bred or were breeding on the coast. It will yet be conclusively proved that the Great Auk was resident the year round on the coasts of New England.

NESTING OF THE RED-FACED WARBLER (*CARDELLINA RUBRIFRONS*) IN THE HUACHUCA MOUNTAINS, SOUTHERN ARIZONA.

BY W. W. PRICE.

This beautiful Warbler is commonly met with in the pine region of Southern Arizona, where, in the Huachuca Mountains, on May 31, 1888, I had the good fortune to find its nest and eggs, the first taken within the limits of the United States, I believe.

Early on that morning I left the house at the mouth of the Ramsey Cañon, taking an old disused lumber road to the mills, situated about three miles from my stopping place, and at an elevation of about 6500 feet, or some 2000 feet above the mesa at the northern base of the range. I had secured a fine variety of birds and was on my return, when I decided to leave the trail and follow down the cañon, which, below the point where the road leaves it and crosses a spur of the mountains, is extremely steep and rocky. As I was making my way slowly down, I noticed a Sulphur-bellied Flycatcher (*Myiodynastes luteiventris*) perched on a branch of a maple, and while I was trying to get a shot at it, a little bird flew from close to my feet. On securing the Flycatcher I returned and searched for some time in vain for my bird and nest, and was about to leave, when a *C. rubrifrons* came chirping about. I secreted myself, and the bird soon flew to a clump of columbine which grew on the bank of the creek. I again flushed the bird, a female, and secured it, and also found the nest, which was placed on sloping ground in a slight hollow and contained four fresh eggs. A few sprays of the columbine hid the nest so completely that had not the bird been frightened directly off from it, I should not have found it. Dissection of the female showed that the full clutch had been laid. The structure was a very poor attempt at nest-building, and made of such loose material that it crumbled to fragments on being removed. The chief substance was fine fibrous weed stalks, while the lining consisted of fine grass, rootlets, plant fibres, and a few hairs. Skeleton leaves and bits of fine bark were scattered sparingly throughout the nest. Leaves and other rubbish had drifted with the wind or had been scratched up all around, to a level with the rim, so that one could hardly see where the nest proper left off. Inside the nest was about two and one half inches wide by one and one half inches in depth; outside it was about five inches wide by three inches in depth. The ground on which the nest was placed was so damp that the bottom part of it was badly decayed.

[The eggs of *Cardellina rubrifrons*, kindly presented by Mr. Price to the National Museum collection at Washington, D. C., are new to science, I believe. They are ovate in shape. Their ground color is a delicate creamy white, and they are spotted with small blotches of cinnamon rufous and a few dots of heliotrope purple and pale lavender. These form a wreath around the larger end. They resemble the eggs of *Helminthophila luciæ* and *H. virginiæ* to a certain extent. They measure .66 × .50, .67 × .50, .66 × .50 and .66 × .50 inch.—CHAS. E. BENDIRE.]

NOTES ON THE BIRDS OF WINCHENDON, WORCESTER COUNTY, MASSACHUSETTS.

BY WILLIAM BREWSTER.

IN 1887 I spent three days (June 23 to 26), and in 1888 seven days (June 11 to 18), investigating the bird fauna of the region about Winchendon, a town near the northern border of Worcester County, Massachusetts, about sixteen miles south of Mt. Monadnock.

On the first trip I was accompanied by Mr. H. A. Purdie, on the second by Messrs. H. M. Spelman and S. W. Denton; while during both visits Mr. C. E. Bailey, a young local collector, devoted his entire time to helping me, his intimate knowledge of the woods and swamps and the particular haunts of some of the rarer birds proving of very great value. Upon looking over the notes made during these trips I have decided to omit in the present paper any detailed mention of birds whose occurrence possesses no particular significance or interest, but a nominal list is given of all the species observed.

Most of the notes relate, of course, to the presence of the summer birds only, but a few captures of rare winter visitors are given on Mr. Bailey's authority.

The region about Winchendon — that is, within five or six miles on every side — varies in elevation from about 850 to 1300 feet.* There are no mountains nearer than Monadnock, but the surface of the country is everywhere broken and hilly, very wild and picturesque, and mainly wooded, the farms being comparatively few and far between, and the forest areas often miles in extent. On the hills and throughout the drier portions of the lowlands, the forests are composed chiefly of white pine, hemlock, and various deciduous trees. The swamps, nearly without exception, are covered with a dense, almost impenetrable and rather stunted growth of black spruces, balsams, and larches, with a very few white spruces. The black spruces and balsams also grow abundantly about the edges of the hill pastures, along the roadsides, and wherever there is young second growth. On sandy levels in the valleys one finds a few red and pitch pines. The hardwood timber on the uplands is composed chiefly of beech, red and sugar maple, yellow and paper birch, with a sprinkling of red oaks and basswoods, a very few chestnuts, and more or less scattering, old-growth spruces. The trees in these upland woods are often of large size, and there are a few tracts which have never been touched by the axe. The underwood is chiefly of hobble bush (*Viburnum lantanoides*) and striped and mountain maples, the last two being especially abundant along the borders of streams and openings. In places yew is also found, but I saw no extensive or very vigorous beds of it. About the swamp edges the beautiful pink azalia (*A. nudiflora*) is everywhere common. Ferns of various species flourish in great luxuriance wherever the soil is damp enough for them, and a deep, soggy carpet of sphagnum covers the ground in the swamps. On the hillsides, especially under white pines, the exquisite little *Linnæa borealis* is frequently met with, and *Clintonia borealis* abounds everywhere.

In more general terms the flora may be characterized as resembling that of the valleys and foot hills about the confines of the White Mountains. It lacks, however, as far as I could learn, one northern tree which is common and very generally distributed throughout northern New England, viz., the arbor vitæ.

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*This generalization is based on the following altitudes furnished me by Mr. H. W Henshaw from the Coast Survey records at Washington; " Winchendon Centre, 1225 ft.; depot, 978 ft.; Bullardville, 845 ft.

Of mammals the white hare and Canada porcupine are abundant. Deer and bears have been exterminated (the latter less than fifty years ago), but a 'wild cat' is occasionally seen. Red squirrels are numerous, gray squirrels less so, but still not uncommon. Foxes, raccoons, woodchucks, skunks and striped squirrels abound.

The bird fauna, like the flora, is curiously mixed in character. Thus, Brown Thrashers, Catbirds, Towhees, Meadowlarks, and Baltimore Orioles occur with Winter Wrens, Golden-crested Kinglets, Yellow-rumped and Black-and-yellow Warblers, Juncos, and White-throated Sparrows. Unlike portions of Berkshire County and the Catskills where these or equally typical representatives of the Canadian and Alleghanian Faunas are found near together, but respectively confined to different altitudinal belts or areas and hence not to any considerable extent in actual company, the country about Winchendon seems to form a neutral ground upon which the birds above-named intermingle on the same levels, and often in the same thickets. If altitude must be assumed to play any part in their distribution its influence is directly contrary to the usual one, for most of the northern birds, whether computed by species or individuals, breed in the valleys, while the Alleghanian forms are certainly not least numerously represented on the hill tops. This seeming paradox is easily explained, however, when we reflect that the woods in the low-lying swamps are closely similar to those of northern New England, whereas the growth on the hills and ridges is essentially the same as that of the lower portions of Massachusetts. This is probably due to the fact that the extremes of elevation within the region are not sufficiently great to overcome local influences, such as differences in soil, relative amounts of moisture, etc. Be this as it may the birds evidently settle wherever the woods, swamps, or fields are most to their liking, without regard to elevation. Such a case may well arouse suspicion as to the extent to which the distribution of birds is directly governed by altitude, or its equivalent, latitude. Is not the presence or absence of certain kinds of country, or of particular trees or plants which furnish congenial food, shelter, or nesting sites more likely to be the determining factor, at least in very many cases? It would be interesting to plant a northern forest in southern New England and await developments. If the spruces, balsams, etc., could be made to live and flourish, the outcome of the experiment would at least go far towards settling the question above proposed.

List of species ascertained to pass the breeding season near Winchendon.
(Those marked with an * are not common.)

1. Urinator imber.
2. Anas obscura.
3. Aix sponsa.*
4. Philohela minor.
5. Actitis macularia.
6. Bartramia longicauda.
7. Bonasa umbellus.
8. Ectopistes migratorius.*
9. Zenaidura macroura.*
10. Buteo borealis.
11. Syrnium nebulosum.
12. Nyctala acadica.
13. Megascops asio.*
14. Bubo virginianus.
15. Coccyzus erythrophthalmus.
16. Dryobates villosus.
17. Ceophlœus pileatus.*
18. Colaptes auratus.
19. Antrostomus vociferus.
20. Chordeiles virginianus.
21. Chætura pelasgica.
22. Tyrannus tyrannus.
23. Myiarchus crinitus.*
24. Contopus borealis.*
25. “ virens.
26. Empidonax minimus.
27. Cyanocitta cristata.
28. Corvus americanus.
29. Dolichonyx oryzivorus.
30. Agelaius phœniceus.
31. Sturnella magna.*
32. Icterus galbula.
33. Quiscalus quiscula æneus.
34. Carpodacus purpureus.
35. Loxia curvirostra minor.
36. Spinus tristis.
37. Poocætes gramineus.
38. Ammodramus henslowi.*
39. Zonotrichia albicollis.*
40. Spizella socialis.
41. “ pusilla.
42. Junco hyemalis.*
43. Melospiza fasciata.
44. Melospiza georgiana.
45. Pipilo erythrophthalmus.
46. Habia ludoviciana.
47. Passerina cyanea.
48. Piranga erythromelas.
49. Progne subis.
50. Petrochelidon lunifrons.
51. Chelidon erythrogaster.
52. Tachycineta bicolor.
53. Clivicola riparia.
54. Ampelis cedrorum.
55. Vireo olivaceus.
56. “ gilvus.
57. “ solitarius.
58. Mniotilta varia.
59. Helminthophila ruficapilla.
60. Compsothlypis americana.
61. Dendroica æstiva.
62. “ cærulescens.*
63. “ coronata.
64. “ maculosa.
65. “ pensylvanica.
66. “ blackburniæ.
67. “ virens.
68. Seiurus aurocapillus.
69. Geothlypis trichas.
70. Icteria virens.*
71. Sylvania canadensis.
72. Setophaga ruticilla.
73. Galeoscoptes carolinensis.
74. Harporhynchus rufus.
75. Troglodytes hiemalis.*
76. Sitta canadensis.*
77. Parus atricapillus.
78. Regulus satrapa.
79. Turdus fuscescens.
80. “ aonalaschkæ pallasii.
81. Merula migratoria.
82. Sialia sialis.

Urinator imber.—One or more pairs of Loons breed regularly in every pond of sufficient size near Winchendon. Mr. Albert Henry, of Gardner, took a set of two eggs at Blue's Reservoir in 1887. At Wellington's Reservoir, a large sheet of water about five miles north of Winchendon, a farmer living near the shore assured us that he saw several of the birds daily through the entire summer. He thought that there were at least three pairs in the pond in 1888.

Anas obscura.—Mr. Bailey sees a few Black Ducks every summer but they are much less numerous at that season than in spring and autumn. Early in June, 1888, he found on the bank of a brook, the shells of several eggs that had probably hatched a few days before.

Nyctala acadica.—A common resident, doubtless breeding numerously, although Mr. Bailey has not as yet succeeded in finding nests.

Surnia ulula caparoch.—In the winter of 1886–87 Mr. Bailey shot three specimens, in that of 1887–1888 one. He thinks they occur regularly every winter.

Dryobates villosus.—During my first visit to Winchendon I did not find this species, but in 1888 we met with several. A pair seen June 16, were feeding young which had evidently just left the nest.

Picoides arcticus.—Mr. Bailey killed four specimens in the winter of 1886–1887, and one during the following winter. He is very sure they were visitors from the north, and that none breed near Winchendon.

Ceophlœus pileatus.—Resident, but not common. Mr. Bailey sees only two or three pairs each season but thinks that there are more in Winchendon than in any of the neighboring towns. About the middle of June, 1887, one of his friends met with a brood of young in the woods. I did not find the bird during either visit, but its unmistakable mortise-shaped 'peck holes' were frequently observed.

Contopus borealis.—June 26, 1887, we found two pairs of Olive-sided Flycatchers in an extensive sphagnum swamp, and after a short search discovered one of their nests near the top of a rather tall black spruce. The female was sitting on three nearly fresh eggs. In 1888 I did not revisit this swamp, but Mr. Bailey passed it a few days before my arrival and heard the Flycatchers calling. We did not find the species elsewhere.

Loxia curvirostra minor.—A single pair seen in spruce woods June 13, 1888, and the male shot. His testes were of large, but not maximum size. Mr. Bailey tells me that this Crossbill is numerous every winter, but he has never seen it in summer before. Its occurrence at the latter season does not prove, of course, that it breeds about Winchendon, although it would be by no means surprising if a few pairs were found to nest there.

Ammodramus henslowi.—Several pairs breeding in a meadow about three miles south of Winchendon.

Zonotrichia albicollis.—In 1887 I met with two males, and in 1888 one, all in spruce swamps. They were in full song and evidently had mates and nests, for they showed the utmost concern when their retreats were invaded.

Junco hyemalis.—Apparently quite as uncommon as the White-throated Sparrow, for we met with only three pairs, one in 1887, two in 1888. All were on high ground in pine or hemlock woods. The males were singing, and the actions of at least one of the females indicated that there were eggs or young somewhere near.

Helminthophila chrysoptera.—A single male was obtained by Mr. Bailey in May, 1888.

Dendroica cærulescens.—The only Black-throated Blue Warbler met with during either year was a male shot June 17, 1888. This bird was singing steadily in a dense growth of young hemlocks on a hillside. As there were no beds of yew (the favorite nesting place of this species) in the neighborhood, and as we had passed several previous mornings in the same woods without hearing the bird, it is probable that he had strayed some distance away from his mate and nest, or that he was a bachelor wandering aimlessly about the country.

Dendroica coronata.—Rather common but nowhere very numerous. Found chiefly in groves of white pines on high ground but also, to some extent, in the spruce swamps. Although we failed to find any nests there can be no doubt whatever that the birds seen were breeding.

Dendroica maculosa.—This Warbler breeds in about the same numbers as the Yellow-rump. Both species were nearly sure to be seen daily, but it was unusual to find more than one pair of either in any single tract of woods, however large. The favorite haunts of the Black-and-yellow, here, as in northern New England, are swamp edges, woodpaths, or borders of openings where the undergrowth is more or less intermixed with young spruces and balsams. In such a place—within about ten yards of a woodpath—we found a nest June 15, 1888, containing four nearly fresh eggs. This nest was typical in position, being placed near the top of a small spruce at a height of about five feet. In construction it differed from Maine nests of this species only in respect to the lining, which was largely of horse hair with, however, an admixture of black rootlets.

Dendroica blackburniæ.— On both high and low ground, wherever there were spruces in any numbers, whether by themselves or mixed with other trees, and also to some extent where the growth was entirely of hemlocks, the Blackburnian Warbler was one of the most abundant and characteristic summer birds, in places even outnumbering the Black-throated Green Warbler, although it shunned strictly the extensive tracts of white pines which *D. virens* seemed to find quite as congenial as any of the other evergreens. A set of four fresh eggs was taken June 26, 1887. The nest, which was found by watching the female, was built at a height of about thirty feet above the ground, on the horizontal branch of a black spruce, some six feet out from the main stem. Its bottom rested securely near the base of a short, stout twig. Above and on every side masses of dark spruce foliage, rendered still denser by a draping of *Usnea* (which covered the entire tree profusely), hid the nest so perfectly that not a vestige of it could be seen from any direction. This nest is composed outwardly of fine twigs, among which some of the surrounding *Usnea* is entangled and interwoven. The lining is of horse hair, fine, dry grasses, and a few of the black rootlets used by *D. maculosa*. The whole structure is light and airy in appearance, and resembles rather closely the nest of the Chipping Sparrow. The eggs measure respectively: .68 × .49; .66 × .50; .69 × .49; .68 × .51 inch. They are marked with pale lavender, vandyke brown, mars brown, and black. Over most of the shell the markings are fine and sparsely distributed, but about the larger end they become broad and more or less confluent, tending to form a wreath pattern. Some of the black markings are linear, resembling pen scratches. The ground color of these eggs before blowing would have passed for dull white, but with the removal of their contents a delicate, yet faint, greenish tinge appeared and has since persisted. This greenish tinge was also a characteristic feature of eight eggs (representing two sets) taken by Mr. Bailey at Winchendon before my arrival in 1887. Lest the identification of the above-described set be questioned, I will add that the female was seen to enter the nest, and that both she and her mate were shot and preserved.

Icteria virens.—Mr. Bailey shot a male of this species May 30, 1888.

Sylvania canadensis.—Throughout the spruce swamps the Canadian Warbler was everywhere abundant. A brood of young barely able to fly were met with June 25, 1887, and the next day Mr. Purdie took a set of eggs rather far advanced in incubation. The nest was in the face of a low, sphagnum-covered mound about eighteen inches above its base. In the soft mould behind the outer covering of sphagnum the birds had excavated a cavity about the size of one's fist. In the bottom of this cavity was the nest, a loosely formed, but nevertheless neat structure, composed outwardly of dry leaves, and lined with pine needles, black rootlets, and a little horse hair. The bird entered by a small round hole, the bottom of which was about on a level with the top of the nest. All the nests (a dozen or more) of this species which I have examined were built like the one just described, although the height above the ground has varied, one which I took at Lake Umbagog in 1879, being higher than my head in a patch of moss that covered the face of a perpendicular cliff. I have yet to see a nest placed *on* the ground and open at the top as most of the book descriptions indicate.

Troglodytes hiemalis.—In the swamp where the Olive-sided Flycatchers breed, we heard two Winter Wrens singing June 26, 1887. While trying to get a sight at one of them I flushed and shot a young bird which could not have been more than a day or two from the nest, as it was unable to fly more than a few yards at a time. There were many fallen trees in the vicinity, and their upturned roots, laden with earth and overgrown with moss, afforded numberless nesting sites. As already stated, I did not revisit this swamp in 1888, but Mr. Bailey tells me that he heard the Wrens singing there a few days before our arrival.

Sitta canadensis.—Besides the Winter Wren and Olive-sided Flycatcher the spruce swamp just mentioned furnished another species not found elsewhere, viz., the Red-bellied Nuthatch. We saw only a single pair which, attracted by the outcry made by the Canadian Warblers as we were taking their nest, came into the trees overhead, uttering their peculiar nasal whining. Doubtless they were breeding somewhere in the neighborhood, although I have no positive proof of this.

Regulus satrapa.—My experience with this species at Winchendon is given fully in another article in this number of 'The Auk.'

Turdus aonalaschkæ pallasii.—An abundant bird throughout the entire region, haunting by preference dry, rather open, white pine woods.

LIST OF ADDITIONS TO THE NORTH AMERICAN AVIFAUNA AND OF ELIMINATIONS AND CHANGES IN NOMENCLATURE PROPOSED SINCE THE PUBLICATION OF THE A. O. U. CHECK-LIST.

BY FRANK M. CHAPMAN.

Since the publication of the 'Check-List' in March, 1886, the additions and corrections to our avifauna have been so numerous it has been considered advisable to collate them, and the following compilation is presented with a hope that it may be of some service to the many workers in North American Ornithology.

It may be well to add that the compiler has made it an object to include *all* the additions and changes which have been made without reference to their tenability.

I. ADDITIONS.

Species and subspecies which have been described as new, 'revived,' or recorded as North American.

1. **Larus barrovianus** *Ridgw.* POINT BARROW GULL.
RIDGWAY, Auk, III, July, 1886, p. 330.

HAB. "Bering's Sea and contiguous waters, northeastward to Point Barrow; southwestward to Japan (in winter)."

2. **Larus minutus** *Pall.* LITTLE GULL.—Recorded from Long Island, New York, by Dutcher in Auk, V, April, 1888, p. 171.

3. **Diomedea exulans** *Linn.* WANDERING ALBATROSS.—Recorded from Florida (mouth of St. Johns River, Tampa Bay) and coast of Washington Territory. (Cf. *Coues*, Auk, II, Oct. 1885, p. 387, and *Ridgway*, Manual North American Birds, 1887, p. 51.)

4. **Diomedea melanophrys** *Boie.* SPECTACLED ALBATROSS.—"Casual off coast of California." (Cf. *Ridgway*, Manual N. A. Birds, 1887, p. 52.)

5. **Oceanodroma leucorhoa macrodactyla** *Bryant.* GUADALOUPE PETREL.

BRYANT, Bull. Cal. Acad. Sci. II, No. 8, 1887.

HAB. "Guadaloupe Island, Lower California."

6. **Chen cærulescens** (*Linn.*). BLUE GOOSE.

Revived by Ridgway in Manual N. A. Birds, 1887, p. 115.

HAB. "Interior of North America, east of Rocky Mountains, breeding on the eastern shores of Hudson's Bay; migrating south, in winter, through Mississippi Valley to the Gulf Coast, occasional on Atlantic Coast" (*Ridgway*, *l.c.*). (= No. 8 of the 'Hypothetical List' of the A. O. U. Code and Check-List of North American Birds.)

7. **Ardetta neoxena** *Cory.*

CORY, Auk, III, April, 1886, p. 262.

HAB. "Florida, Okeechobee region?"

8. **Ardea wuerdemanni** *Baird.* WUERDEMANN'S HERON.

Admitted by Ridgway in Manual N. A. Birds, 1887, p. 128, and Appendix, p. 583. (= No. 9 of the 'Hypothetical List' of the A. O. U. Code and Check List.)

HAB. "Florida Keys and Cape Florida; Jamaica?; accidental in Southern Illinois." (*Ridgway*, *l.c.*)

9. **Ardea virescens frazari** *Brewst.* FRAZAR'S GREEN HERON.

BREWSTER, Auk, V, Jan. 1888, p. 83.

HAB. "Near La Paz, Lower California."

10. **Rallus longirostris caribæus** *Ridg.*—Recorded from Texas (Corpus Christi and Galveston) by Sennett in Auk, V, July, 1888, p. 319.

11. **Rallus longirostris scottii** *Senn.* SCOTT'S RAIL.

SENNETT, Auk, V, July, 1888, p. 305.

HAB. "West Coast of Florida."

12. **Tringa damacensis** (*Horsf.*). LONG-TOED STINT.—

Recorded from Alaska (Otter Island, Bering's Sea) by Ridgway in Auk, III, April, 1886, p. 275.

13. **Symphemia semipalmata inornata** *Brewst.* WESTERN WILLET.

BREWSTER, Auk, IV, April, 1887, p. 144.

HAB. "Interior of North America between the Mississippi and the Rocky Mountains, wintering along the coasts of the Gulf and Southern States (Florida, Georgia, South Carolina)."

14. **Hæmatopus frazari** *Brewst.* FRAZAR'S OYSTER-CATCHER.

BREWSTER, Auk, V, Jan. 1888, p. 85.

HAB. "Pacific and Gulf Coasts of Lower California."

15. **Colinus virginianus cubanensis** (*Gould*). CUBAN BOB-WHITE.—Included by Ridgway in Manual N. A. Birds, 1887, p. 188.

HAB. "Cuba and Southwestern Florida." (*Ridgway*, *l. c.*)

16. **Columba fasciata vioscæ** *Brewst.* VIOSCA'S PIGEON.

BREWSTER, Auk, V, Jan. 1888, p. 86.

HAB. "Lower California."

17. **Columbigallina passerina pallescens** (*Baird.*) MEXICAN GROUND DOVE.—Revived by Ridgway in Manual N. A. Birds, 1887, p. 586, Appendix.

HAB. "Southwestern United States (Texas to Arizona and Lower California), and south through Mexico (both coasts), to Central America." (*Ridgway*, *l. c.*)

18. **Falco æsalon** *Lath.* MERLIN.—Recorded from Greenland by Kumlien in Auk, IV, Oct. 1887, p. 345.

19. **Falco tinnunculus** *Linn.* KESTREL.—Recorded from near Nantasket Beach, Massachusetts, by Cory in Auk, V, Jan., 1888, p. 110. (See also *Ibid*, V, April, 1888, p. 205.)

20. **Glaucidium gnoma hoskinsii** *Brewst.* HOSKINS'S PIGMY OWL.

BREWSTER, Auk, V, April, 1888, p. 136.

HAB. "Lower California."

21. **Rhynchopsitta pachyrhyncha** (*Swains.*). THICK-BILLED PARROT.—"Southwestern Texas and Southern New Mexico." (Cf. *Ridgway*, Manual N. A. Birds, 1887, p. 269.) (= No. 16 of the 'Hypothetical List' of the A. O. U. Code and Check-List.)

22. **Coccyzus americanus occidentalis** *Ridgw.* CALIFORNIA CUCKOO.

RIDGWAY, Manual N. A. Birds, 1887, p. 273.

HAB. "Western United States, north to Oregon, east to New Mexico and Colorado, south over tablelands of Mexico."

23. **Coccyzus maynardi** *Ridgw.* MAYNARD'S CUCKOO.

RIDGWAY, Manual N. A. Birds, 1887, p. 274.

HAB. "Bahamas and Florida Keys."

24. **Phalænoptilus nuttalli nitidus** *Brewst.* FROSTED POOR-WILL.

BREWSTER, Auk, IV, April, 1887, p. 147.

HAB. "Texas and Arizona."

25. **Phalænoptilus nuttalli californicus** *Ridgw.*

RIDGWAY, Manual N. A. Birds, 1887, p. 588, Appendix, foot-note (provisional description).

26. **Chordeiles virginianus sennetti** (*Coues*) *Chamberlain.*

Chordiles popetue sennetti COUES, Auk, V, Jan. 1888, p. 37.

Chordeiles virginianus sennetti CHAMBERLAIN, Systematic Table of Canadian Birds, 1888, Appendix A, p. 14.

HAB. "Dakota to Texas, in any treeless country."

27. **Chordeiles virginianus chapmani** (*Sennett*) *Scott.*

Chordiles popetue chapmani COUES, Auk, V, Jan. 1888, p. 37.

Chordeiles virginianus chapmani SCOTT, Auk, V, April, 1888, p. 186.

HAB. "Florida to Texas."

28. **Trochilus floresii** (*Gould*). FLORESI'S HUMMINGBIRD.—Recorded from California by Bryant in 'Forest and Stream,' XXVI, June 24, 1886, p. 426.

29. **Trochilus violajugulum** *Jeffries.*

JEFFRIES, Auk, V, April, 1888, p. 168.

HAB. "Santa Barbara, Cal."

30. **Empidonax cineritius** *Brewst.* ST. LUCAS FLYCATCHER.

BREWSTER, Auk, V, Jan. 1888, p. 90.

Type from La Laguna, Lower California.

31. **Cyanocitta stelleri annectens** (*Baird*). BLACK-HEADED JAY.—Revived by Ridgway in Manual N. A. Birds, p. 354.

HAB. "Northern Rocky Mountains, south to Wasatch Range (near Provo, Utah), west to eastern Oregon and Washington Territory." (*Ridgway, l. c.*)

32. **Aphelocoma insularis** *Hensh.*

HENSHAW, Auk, III, Oct. 1886, p. 452.

HAB. "Santa Cruz Island, California."

33. **Aphelocoma californica hypoleuca** *Ridgw.* XANTHUS'S JAY.

RIDGWAY, Manual N. A. Birds, 1887, p. 356.

HAB. "Lower California (vicinity of Cape St. Lucas)."

34. **Corvus corax principalis** *Ridgw.* NORTHERN RAVEN.

RIDGWAY, Manual N. A. Birds, 1887, p. 361.

Corvus corax carnivorus BAIRD, P. R. R. Surv. IX, 1858, p. 560. (Cf. *Allen*, Auk, IV, 1887, p. 335.)

HAB. "Northern North America, from Greenland to Alaska, south to British Columbia, Canada, New Brunswick, etc."

35. **Corvus americanus hesperis** *Ridgw.* CALIFORNIA CROW.

RIDGWAY, Manual N. A. Birds, 1887, p. 362.

HAB. "Western United States, north to Washington Territory (Puget Sound), Idaho, Montana, etc., south to Northern Mexico, east to Rocky Mountains."

36. **Agelaius phœniceus bryanti** *Ridgw.* BAHAMAN REDWING.

RIDGWAY, Manual N. A. Birds, 1887, p. 370.

HAB. "Bahamas and Southern Florida (Miami, Key West, etc.)."

37. **Agelaius phœniceus sonoriensis** *Ridgw.* SONORAN REDWING.

RIDGWAY, Manual N. A. Birds, 1887, p. 369.

HAB. "Northwestern Mexico and lower Colorado Valley, in Southern California and Arizona; south to Mazatlan."

38. **Pinicola enucleator kodiaka** *Ridgw.* KODIAK PINE GROSBEAK.

RIDGWAY, Manual N. A. Birds, 1887, p. 388.

HAB. "Kodiak to Sitka, Alaska. (Also probably southward to higher Sierra Nevada of California.)"

39. **Carpodacus frontalis ruberrimus** *Ridgw.*

RIDGWAY, Manual N. A. Birds, 1887, p. 391, foot-note.

(Provisional description of the Lower California bird.)

40. **Plectrophenax nivalis townsendi** *Ridgw.* PRYBILOF SNOWFLAKE.

RIDGWAY, Manual N. A. Birds, 1887, p. 403.

HAB. "Prybilof Islands, Alaska, and Commander Islands, Kamtschatka."

41. **Ammodramus caudacutus subvirgatus** *Dwight.* ACADIAN SHARP-TAILED SPARROW.

DWIGHT, Auk, IV, July, 1887, p. 233.

HAB. "Marshes of southern New Brunswick, Prince Edward Island, and probably Nova Scotia, and southward in migration along the Atlantic Coast."

42. **Ammodramus maritimus peninsulæ** *Allen.* SCOTT'S SEASIDE SPARROW.

ALLEN, Auk, V, July, 1888, p. 284.

HAB. "Southwestern Florida (Tarpon Springs and Cedar Keys), and Louisiana (Grand Isle)."

43. **Ammodramus maritimus sennetti** *Allen.* TEXAN SEASIDE SPARROW.

ALLEN, Auk, July, 1888, p. 286.

HAB. "Gulf Coast of Texas (Corpus Christi)."

44. **Ammodramus australis** *Mayn.*

MAYNARD, Am. Ex. and Mart and Household Journal, III, Feb. 5, 1887, p. 69.

HAB. "Rare in the Bahamas but constantly resident in Florida."

45. **Spizella pusilla arenacea** *Chadb.* WESTERN FIELD SPARROW.

CHADBOURNE, Auk, III, April, 1886, p. 248; MERRIAM, Auk, V, Oct. 1888, p. 402.

HAB. Migratory or perhaps resident in winter in southern Texas. In summer northward to Dakota.

46. **Junco hyemalis carolinensis** *Brewst.* CAROLINA JUNCO.

BREWSTER, Auk, III, Jan. 1886, p. 108.

HAB. "Mountains of Western North Carolina."

47. **Junco hyemalis shufeldti** *Coale.*

COALE, Auk, IV, Oct. 1887, p. 330.

Type from Fort Wingate, New Mexico.

48. **Peucæa ruficeps scottii** *Senn.* SCOTT'S SPARROW.

SENNETT, Auk, V, Jan. 1888, p. 41.

Peucæa homochlamys SHARPE, Cat. Bds. Brit. Mus. XII, 1888, 713.

HAB. "Highlands of Arizona, New Mexico (Silver Springs)? and Western Texas (Presidio and Mitchell Counties)?"

49. **Pyrrhuloxia sinuata beckhami** *Ridgw.* ARIZONA PYRRHULOXIA.

RIDGWAY, Auk, IV, Oct. 1887, p. 347.

HAB. "Southern Arizona and New Mexico and contiguous portion of northern Mexico."

50. **Pyrrhuloxia sinuata peninsulæ** *Ridgw.* ST. LUCAS PYRRHULOXIA.

Ridgway, Auk, IV, Oct. 1887, p. 347.

Hab. "Lower California."

51. **Guiraca cærulea eurhyncha** *Coues.* Western Blue Grosbeak.—Revived by Ridgway in Manual N. A. Birds, 1887, p. 445.

Hab. "Western United States, north to Colorado, California, etc., south throughout Mexico" (*Ridgway*, *l.c.*).

52. **Passerina versicolor pulchra** *Ridgw.* Beautiful Bunting.

Ridgway, Manual N. A. Birds, 1887, p. 448.

Hab. Lower California and western Mexico (vicinity of Mazatlan).

53. **Euetheia canora** (*Gmel.*). — Recorded from Florida (Sombrero Key) by Merriam in Auk, V, July, 1888, p. 322.

54. **Piranga rubriceps** *Gray.* — Recorded from California (Das Pueblo, Santa Barbara Co.) by Bryant in Auk, IV, Jan. 1887, p. 78.

55. **Progne cryptoleuca** *Baird.* Cuban Martin.—Revived by Ridgway in Manual N. A. Birds, 1887, p. 459.

Hab. "Cuba and southern Florida; Honduras?" (*Ridgway*, *l.c.*)

56. **Lanius ludovicianus gambeli** *Ridgw.* California Shrike.

Ridgway, Manual N. A. Birds, 1887, p. 467.

Hab. "California, especially coast district."

57. **Vireo gilvus swainsoni** (*Baird.*) Western Warbling Vireo. — Revived by Ridgway in Manual N. A. Birds, 1887, p. 472.

Hab. "Western United States, east to Rocky Mountains; south through central and western Mexico in winter." (*Ridgway*, *l.c.*) (See also *Allen*, Auk, V, Jan. 1888, p. 32.)

58. **Vireo solitarius alticola** *Brewst.* Mountain Solitary Vireo.

Brewster, Auk, III, Jan. 1886, p. 111.

Hab. "Mountains of western North Carolina."

59. **Vireo noveboracensis maynardi** *Brews.* Key West Vireo.

Brewster, Auk, IV, April, 1887, p. 148.

Hab. "Key West, Florida."

60. **Dendroica æstiva morcomi** *Coale.* Western Yellow Warbler.

COALE, Bull. Ridgway Ornithological Club, No. 2, April, 1887, p. 82.

HAB. "The Western Province of North America."

61. **Dendroica æstiva sonorana** *Brewst.* SONORA YELLOW WARBLER.

BREWSTER, Auk, V, April, 1888, p. 137.

HAB. "Southern Arizona, western Texas (Frontera), and Sonora, Mexico."

62. **Troglodytes aëdon aztecus** *Baird.* WESTERN HOUSE WREN.— Considered by Allen to be the form occupying the Middle Province. (*Allen*, Auk, V, April, 1888, p. 164.)

63. **Cistothorus palustris paludicola** *Baird.* TULE WREN.— Revived by Ridgway in Manual N. A. Birds, 1887, p. 556.

HAB. "Western United States, east to Rocky Mountains (to Great Plains?); south in winter over tablelands of Mexico to Guatemala" (*Ridgway l.c.*).

64. **Cistothorus marianæ** *Scott.* MARIAN'S MARSH WREN.

SCOTT, Auk, V, April, 1888, p. 188.

Type from Tarpon Springs, Florida.

65. **Parus bicolor texensis** *Senn.* TEXAN TUFTED TITMOUSE.

SENNETT, Auk, IV, Jan. 1887, p. 29.

HAB. "Bee Co., Southern Texas; Brownsville."

66. **Parus atricristatus castaneifrons** *Senn.* CHESTNUT-FRONTED TITMOUSE.

SENNETT, Auk, IV, Jan. 1887, p. 28.

HAB. Bee Co., Texas.

67. **Parus carolinensis agilis** *Senn.* PLUMBEOUS CHICKADEE.

SENNETT, Auk, V, Jan. 1888, p. 46.

HAB. "Texas (Bee, Victoria, and Concho Counties)."

68. **Parus stoneyi** *Ridgw.* KOWAK CHICKADEE.

RIDGWAY, Manual N. A. Birds, 1887, p. 591, Appendix.

Type from "Kowak or Putnam River, northwestern Alaska."

69. **Psaltriparus lloydi** *Senn.* LLOYD'S BUSH-TIT.

SENNETT, Auk, V, Jan. 1888, p. 43.

HAB. "Mountains of Western Texas, between the Pecos and Rio Grande Rivers."

The following species, given in the 'Hypothetical List' of the A. O. U. Check-List, are included by Mr. Ridgway in his 'Manual' without the appearance of further evidence of their validity or claim to rank as North American.

Æchmophorus clarkii (*Lawr.*).
Cepphus motzfeldi (*Benick.*).
Xema furcata (*Neb.*).
Oceanodroma hornbyi (*Gray*).
Phalacrocorax perspicillatus *Pall.*
Ardea pealei *Bonap.*
Tringa cooperi *Baird.*
Buteo cooperi *Cass.*
Buteo fuliginosus *Scl.*
Acanthis brewsterii *Ridgw.*
Spiza townsendi (*Aud.*).
Helminthophila lawrencei (*Herrick*).
Helminthophila leucobronchialis (*Brewst.*).
Helminthophila cincinnatiensis (*Langd.*).
Dendroica carbonata (*Aud.*).
Sylvania microcephala *Ridgw.*
Regulus cuvieri *Aud.*

II. ELIMINATIONS.

Species and subspecies, which, as subsequent investigation has shown, should now be withdrawn from the A. O. U. Check-List.

22. **Synthliborhamphus wumizusume** (*Temm.*). — The claim of this species to rank as a North American bird appears to have been based on winter specimens of *Synthliborhamphus antiquus.* (Cf. *Stejneger*, Pr. U. S. Nat. Mus. IX, 1886, p. 524.)

290. **Colinus graysoni** (*Lawr.*). — The North American record proves to have been based on specimens of *Colinus ridgwayi.* (Cf. *Allen*, Bull. Am. Mus. Nat. Hist. I, No. 7, July, 1886, p. 273, and also *Ridgway*, Manual N. A. Birds, 1887, p. 585, Appendix.)

519 *a.* **Carpodacus frontalis rhodocolpus** (*Cab.*).—"This proves to be an individual color phase of *C. frontalis* (or *C. mexicanus frontalis*)." (Cf. *Ridgway*, Manual N. A. Birds, 1887, p. 391, foot-note, and Appendix, p. 594.

576. **Peucæa arizonæ** *Ridgw.*—"This proves to be the same as No. 577, *P. mexicanus* (*Lawr.*). . . ." (Cf. *Ridgway*, Manual N. A. Birds, 1887, Appendix, p. 594.)

589 *b.* **Peucæa ruficeps eremœca** *Brown.* — This proves to be the same as No. 580 *a*, *Peucæa ruficeps boucardi* (*Scl.*). (Cf. *Sennett*, Auk, V, Jan. 1888, p. 40, and *Sharpe*, Cat. Bds. Brit. Mus. XII, 1888, p. 714.)

III. CHANGES IN NOMENCLATURE.

The table presented by Mr. Ridgway on page 594 of his 'Manual' comprises so large a proportion of the recent changes in nomenclature that it will be necessary to include here only those changes made since the publication of his work.

52. **Larus cachinnans** *Pall.* — Considered by Stejneger to be *Larus vegæ* (Palmén). (Cf. *Stejneger*, Auk, V, 1888, p. 310.)

[288]. **Jacana gymnostoma** (*Wagl.*) — Considered by Elliot to be *Jacana spinosa* (Linn.). (Cf. *Elliot*, Auk, V, July, 1888, p. 297.)

306. **Tympanuchus cupido** (*Linn.*). Renamed by Coues *Cupidonia cupido brewsteri.* (Cf. *Coues*, Key, 1887, Appendix, p. 884.)

419. **Nyctidromus albicollis** (*Gmel.*).—The Rio Grande Valley form has been described as *Nyctidromus albicollis merrilli* Senn. (Cf. *Sennett*, Auk, V, Jan. 1888, p. 44.)

602. **Sporophila morelleti** (*Bonap.*). — The Rio Grande Valley bird is considered by Sharpe to be *Spermophila parva* Lawr. (Cf. *Sharpe*, Cat. Bds. Brit. Mus. Vol. XII, 1888, p. 124.)

706. **Harporhynchus longirostris** (*Lafr.*).— The Texan bird has been described as *Harporhynchus longirostris sennetti* Ridgw. Cf. *Ridgway*, Proc. U. S. Nat. Mus. 1887, p. 506.)

719 *b.* **Thryothorus bewickii bairdi** (*Salv* & *Godm.*). — Now known as *Thryothorus bewickii murinus* (Hartl.). (Cf. *Ridgway*, Auk, IV, Oct. 1887, p. 349.)

DESCRIPTION OF THE BREEDING PLUMAGE OF CHADBOURNE'S FIELD SPARROW (*SPIZELLA ARENACEA*), WITH EVIDENCE OF ITS SPECIFIC DISTINCTNESS.

BY DR. C. HART MERRIAM.

Two years ago Dr. Arthur P. Chadbourne described* a new *Spizella* from southern Texas. His description was based on specimens in winter plumage, from which he assumed the new form to be merely a subspecies of *Spizella pusilla*. Mr. Ridgway redescribed the bird in his new 'Manual of North American Birds,' but was no better off for material, all of his specimens being in fall or winter plumage (though not so stated in the Manual). Mr. Vernon Bailey has recently sent me an adult male *Spizella* in breeding plumage from Fort Pierre, Dakota, which proves to be widely different from any known species of the genus. It is appreciably larger than *S. pusilla*, and its entire head and nape are clear ash-gray, with but a faint wash of rusty over the sides of the crown. Comparison with specimens of *arenacea* in the collection of the United States National Museum leads to the belief that the present specimen represents the previously unknown breeding plumage of that bird. It is so totally unlike *Spizella pusilla* or any other known species of the genus that it cannot for a moment be regarded as only subspecifically separable. At first glance the bird looks like an overgrown specimen of *Spizella atrigularis* of the second year, excepting that the colors are everywhere lighter and clearer.

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* Auk, III, April, 1886, 248.

Description of specimen.—(No. 113,893, U. S. Nat. Mus.) Head and neck all around clear grayish ash, paler below, nearly white under the chin; sides of crown faintly washed with rusty; no rusty spot on side of breast, nor buffy suffusion anywhere on breast; interscapulars pale, the rusty being confined mostly to the scapulars; outer edges of wing feathers whitish; wing-bars barely distinguishable; otherwise much as in the fall specimens from Texas described by Dr. Chadbourne.

*Measurements.** — Culmen from base, 10 mm.; culmen from nostril, 7 mm.; wing, 68 mm.; tail, 67 mm.

Remarks. — Two additional specimens, also both males, collected at Valentine, Nebraska. June 21, 1888, agree with the above in all respects, except that there is little more rusty on the sides of the crown and interscapulars.

Catal. No. U. S. Nat. Mus.	Sex.	Locality.	Date.	Wing.	Tail.	Culmen,	
						from actual base.	from nostril
113,893	♂	Ft. Pierre, Dak.	May 29, 1888.	68	67	10	7
113,894	♂	Valentine, Neb.	June 21, 1888.	68	68.5	9.5	7
———	♂	" "	" "	65		10	7

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* The wing measurement is taken with dividers, the primaries in their natural position, *i. e.*, not straightened. The tail measurement is taken with dividers, and is made from the point of insertion of the two middle tail feathers to the tip of the longest feather.

DESCRIPTION OF A NEW SPECIES OF WREN FROM THE ISLAND OF TOBAGO, WEST INDIES.

BY GEORGE N. LAWRENCE.

Troglodytes tobagensis.

The upper plumage is rufous brown, of a brighter rufous on the rump; the back is crossed with narrow, dusky, nearly obsolete bands; the wings are of a brighter color than the back, and are closely crossed with very distinct narrow blackish bars; the tail is of a brighter rufous brown than the back and wings, with transverse blackish bars, which are bordered on one side with clear, pale rufous; lores and a streak running back from the eye, of a very pale rufous white; entire sides and under tail-coverts of a rather light, bright rufous; throat, breast, and abdomen very pale rufous white; upper mandible brown, the lower whitish horn color; tarsi and toes light brown.

Length (skin), 4.75 inches; wing, 2.25; tail, 1.65; bill, 0.63; tarsus, 0.70.

HABITAT. Island of Tobago, where it is known as "God Bird."

Type in American Museum of Natural History, formerly in my collection.

It was kindly presented to me by Mr. F. A. Ober, by whom it was collected.

Remarks. The color of the upper plumage of this species is much like that of *T. striatulus*, but the bars on the wings and tail are much more strongly marked; the under plumage is much lighter in color; it is considerably larger; the bill is conspicuously longer and stronger.

DESCRIPTION OF AN APPARENTLY NEW *POOCÆTES* FROM OREGON.

BY G. S. MILLER, JR.

Poocætes gramineus affinis, subsp. nov.

SUBSP. CH.—(Type No. 2503, Coll. G. S. Miller, Jr.; Salem, Ore., May 29, 1887). Similar to *Poocætes gramineus confinis* Baird in respect to the slender bill and narrow dark dorsal streakings, but differing in being smaller and having the ground color above buffy-brown rather than grayish-brown. All the lighter areas of the plumage (including crissum, under wing-coverts and lining of wings) suffused with pinkish buff.

Dimensions (average of eight adults): wing, 3.04; tail, 2.46; tarsus, 0.79; culmen, 0.46; bill from nostril, 0.31 inch.

HABITAT. Salem, Oregon.

NESTING OF THE PRAIRIE WARBLER, (*DENDROICA DISCOLOR*) IN THE VICINITY OF WASHINGTON, D. C.

BY ELLIOTT BAIRD COUES.

ALTHOUGH common throughout the District of Columbia, this beautiful little bird nests more abundantly in certain suitable localities than in others. One of these breeding-places was discovered by my friend, Mr. T. W. Richards, and myself last spring, and I have pleasure in laying before the readers of 'The Auk' the results of our joint observations.

The locality is along the Potomac River, on the Virginia side, about seven miles from the city, among some small hills from which all the large trees have been cut away, and which are now grown up to a thick scrub of hickory, dogwood, and laurel (*Kalmia latifolia*), with here and there a few young pines and cedars. Here were found breeding within a small area an astonishing number of the birds, perhaps more than fifty pairs. On reaching the place, they could be heard singing on all sides, sometimes several at the same moment. Among them were a few Yellow-breasted Chats (*Icteria virens*), but our whole attention was directed to the Warblers. On our first visit, May 22, we found one nest; but on two subsequent visits, a week later, many more than we cared to take were easily found, with full sets of eggs. They were so numerous and so readily discovered that to take all we desired was simply a matter of walking about in the bushes. The nests were only a few feet from the ground, and were placed preferably in the hickory and dogwood bushes. Only three nests were found in the young pines, and one in a cedar bush. During the heat of the day the birds—the males at any rate—seemed to seek the shade of the larger pines bordering the clearing where the nests were placed, as we heard many singing from the neighboring woods while we were rambling through the scrub.

From among the large number of nests taken I select for description five which illustrate the variations in construction and situation, adding some remarks on the behavior of the birds as they were robbed of their pretty homes in the necessary interests of science.

Nest No. 1. This is evenly placed upright in the triple prong of a low laurel bush, about two and a half feet from the ground. From among twelve nests, it is the only one symmetrically placed in a crotch, the others being all irregularly supported by twigs either branching at varying angles from a main stem, or, as in some cases, coming to the support of the nest from a different part of the bush. It is composed chiefly of dandelion down, in which are woven a few thin straws and dry leaves. It is lined with very fine bits of straw and a little horsehair. The brim is firm and smooth, as is the rule with the nests of the Prairie Warbler, but a little higher on one side than elsewhere, and is evenly turned of the same materials as the lining. The inside measurement is just about one and three quarters inches both in depth and in width. It contained four fresh eggs. The birds quickly returned after flushing, and while I was wrapping the eggs in cotton, preparatory to removing them with the nest, both parents hopped about very near me, showing apparently little anxiety for the fate of their treasures.

Nest No. 2 is particularly neat and compact, with an even and exceptionally firm brim. It is made almost entirely of dandelion down, closely felted, and further secured with a few straws, and is stuccoed over outside with small dry leaves. The inside is copiously lined with red cowhair, making a marked color contrast with the other materials. It was placed about five feet from the ground, and fixed rather lightly in an irregularly three-pronged crotch, being further fastened to a spray of blackberry bramble which passed under it and between its side and one of the prongs of the crotch. The owners of this nest seemed much more concerned at the rifling of their home than the first pair, and fluttered close about my head, incessantly reiterating a single sharp note of distress. The nest contained four eggs.

Nest No. 3 was placed in a very young pine, about one and a half feet from the ground. It is built against the upright main trunk (which is about as thick as one's finger), and is supported by two small diverging twigs, one of which is nearly under the nest, the other rising on one side of it. The body of this nest is of cotton-wool—probably some dropped by ourselves in an earlier visit; and with this as a basis are woven fine, white, silken fibres of some unidentified plant. Some of the green pine needles also grow out through the substance of the nest and others again are turned back and woven into the cotton, the whole effect being very pretty. Close to the brim a few fine straws are wreathed about, and the lining consists of extremely fine fibres. The inside dimensions are one and a half inches in depth and width. This nest contained four incubated eggs; they closely resemble a set of Field Sparrow's eggs in my collection. The birds were quite shy in this case, and it was only by close watching that they were identified.

Nest No. 4 is situated also in what seems to be the usual position, against the side of the upright stem of a little hickory bush, firmly supported by three small twigs coming off irregularly from the main stem, about half an inch apart, at different angles. It is made less neatly than usual, of a quantity of plant-fibres, a little cedar bark in fine strips, one dried leaf, and several projecting white feathers. This nest is lined with fine straws, a little hair, and a few small feathers. The inside measurements are the same as those of No. 3. There is a considerable gap in the brim where it rests against the upright support, and the whole structure is less cleanly cupped than in other cases. The nest contained four fresh eggs. I almost touched the mother bird before she would fly. She left without a sound, and did not return during the few moments I was there. Perhaps she went with the news in search of her mate, who may have been amusing himself in the shady woods at some distance.

Nest No. 5. This specimen is at once the most compactly woven and most irregularly shaped of the five. The situation also is unusual; it is placed in a mass of grapevine twigs, about three feet from the ground. It is composed of the usual silky plant fibres (perhaps of a species of *Asclepias*), thin shreds of inner cedar bark, and fine grass straws, and is lined with still finer straws and a little horsehair. Besides being the most irregular, it is also the shallowest nest I have seen, being only about one inch deep inside by one and three-quarters inches across. The shape of the construction no doubt depends upon the site, as the bunch of grapevine twigs affords a foundation very different from an upright or oblique crotch. The brim is also exceptionally formed of seven comparatively large brown feathers about three inches long, all woven in for about two-thirds of their length, excepting one which is woven only at the tip, the rest of its length being simply laid down upon the brim of the nest. Thus six of the feathers protrude for about an inch above the brim, giving it a rough, bristling appearance, especially since it is the quill-end of each of these feathers that sticks up. This nest contained three eggs, incubation of which had just begun. The bird left it quietly on my near approach, and with her mate was seen hopping unconcernedly about as long as I stayed.

The nests here described and also others examined have nearly the same capacity (average depth and diameter both about one and a half inches), but vary considerably in outside measurements, owing in part to the different thickness of the walls, in part to their shape as a whole; the latter is influenced in every case, to a greater or less extent, by the direction of the supporting twigs. Exceptions aside, the Prairie Warbler's nest may be characterized as a neat, cup-shaped structure with a firm, somewhat contracted brim, composed of vegetable down or soft fibre mixed with some fine straws and a few leaves or feathers, lined with hair and very fine straws, and placed in an upright or oblique crotch, preferably one formed in part by the main stem of a bush, from one and a half to five feet from the ground, in a rather open, scrubby, hilly locality. The eggs appear to be oftenest four in number, sometimes only three. In no case were five found. They are too well-known by descriptions in standard works to require notice here. I need only add that the identification of the specimens above described is absolute, and that they now form part of my collection.

RECENT LITERATURE.

Turner's Report of his Ornithological Observations in Alaska.*—We welcome with great pleasure Mr. Turner's long-looked-for report on his ornithological work in Alaska during the seven years (May, 1874-August, 1881) spent there by him as an observer for the U. S. Signal Service. His report covers a wide range of field work and indicates diligent and intelligent labor in an interesting region. The report consists first of the 'Letter of Transmittal,' dated April 25, 1882, the letter being in the nature of a preface or introduction, stating where and under what conditions the work was done, with acknowledgments of assistance in the determination of specimens, etc. From this it appears that the collections were made chiefly at St. Michael's (May 25, 1874–July 14, 1887), Unalashka, and Attu Island. 'Part I.—General Description,' is devoted to an account of the physical characteristics of the country (pp. 13–16). 'Part II.—Meteorology,' is the report on the meteorological observations (pp. 17–59). 'Part III.—Plants,' gives an annotated list of Alaskan plants (pp. 61–85), based largely on Dr. J. T. Rothrock's 'Sketch of the Flora of Alaska,' published in 1867, with, however, numerous and important additions, 'Part IV.— Fishes,' (pp. 87-113, with 15 uncolored plates) has the authority of Dr. T. H. Bean's determinations, with copious and important field notes by the author. 'Part V.—Birds,' occupies pp. 115–196, with 10 colored plates, and is the part of special interest in the present connection. 'Part VI.—Mammals' (pp. 197-208), and a very full index, conclude the volume, which is printed with remarkable accuracy throughout, as regards technical names, for a public document.

Mr. Turner's work on the birds of the region visited was performed under many limitations and difficulties consequent upon the engrossing nature of his other duties. The notes given are, "except in a few instances, the results of my [his] own observations in the field." Several species collected proved new to the North American fauna, and others had previously been special desiderata. The Part devoted to birds consists of two distinct lists, the first, numbering 168 species, and copiously annotated, constitutes the report upon his own special field work; the other is a 'List of the Birds of Alaska,' without notes, and containing all the species "authentically known and recognized" as Alaskan, 269 in number. None are included of which there is "no recorded instance of their occurrence in Alaska."

Mr. Turner's annotations are not to any large extent technical, relating mostly to distribution and habits, with occasionally descriptions of bill feet, iris, etc., from fresh specimens, and of plumage, with frequently explanations and comment on the native names, and notes on the uses of the birds made by the natives. The remarks on the breeding habits of many of the species contain much that is new and important. The colored plates, drawn by Messrs. Robert and John L. Ridgway, add greatly to the interest of the work. The species figured, some of them for the first time, are the following: (1) Whiskered Auklet (*Simorhynchus pygmæus;* (2) Kittlitz's Guillemot (*Brachyramphus kittlitzii;* (3) Turner's Ptarmigan (*Lagopus rupestris atkhensis*, ♂ and ♀); (4) Lapp Owl (*Ulula cinerea lapponica*); (5) Hawk Owl (*Surnia ulula*); (6) White-winged Crossbill (*Loxia leucoptera*, juv., first plumage); (7) Cassin's Bullfinch (*Pyrrhula cassini*); (8) Aleutian Leucosticte (*Leucosticte griseinucha*); (9) Swinhoe's Wagtail (*Motacilla ocularis*); (10) Meadow Pipit (*Anthus cervinus*); (11) Alaskan Wren (*Troglodytes alascensis*); (12) Siberian Chickadee (*Parus cinctus obtectus*); (13) Hudsonian Chickadee (*Parus hudsonicus*).

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*Contributions | to the | Natural History of Alaska. | — | Results of Investigations made chiefly in the Yukon | District and the Aleutian Islands; conducted | under the auspices of the Signal Service, | United States Army, extending | from May, 1874, to August, 1881. | Prepared under the direction of | Brig. and Bvt. Maj. Gen W. B. Hazen, | Chief Signal Officer of the Army, | by | L. M. Turner. | — | No. II. | Arctic Series of Publications issued in connection with the Signal Service, U. S. Army. | With 26 Plates. | — | Washington: | Government Printing Office. | 1886[=1888]. 4to., pp. 226, pll. 26.—Birds, pp. 115–196, with 10 colored plates.

Although the report was transmitted for publication in 1882, in nomenclature and other technical points it appears to have been brought down to the date of printing (1886) given on the title page, the nomenclature and classificatlon of the A. O. U. Check-List* having been adopted for the birds. Obligations for assistance and facilities in the preparation of this part of the report are made to Mr. R. Ridgway, Dr. L. Stejneger, and the late Professor Baird.

In closing this notice of Mr. Turner's important contribution to North American ornithology, it gives us pleasure to announce that other belated reports on ornithological work done under the auspices of the U. S. Signal Servce Bureau may yet be expected, the volume before us announcing as “in course of preparation” a ‘Report upon Natural History Collections made in Alaska in 1887–1881,' by Mr. E. W. Nelson; a ‘Report of the Expedition to Lady Franklin Bay,' by Lieut. (now Gen.) A. W. Greely; and a ‘Report of Observations made in Ungava and Labrador,' by Mr. L. M. Turner, author of the Report now under notice. While it is to be regretted that these reports become so largely shorn of their freshness and interest by these long delays in making them public, it is gratifying to know that the work of these intrepid explorers is not to be wholly lost to science.—J. A. A.

Sharpe's Catalogue of the Family Fringillidæ.†—In a thick volume of nearly 900 pages, with 16 colored plates, Mr. R. Bowdler Sharpe, the indefatigable custodian of the unrivalled collection of birds in the British Museum, has attempted the herculean task of describing and arranging in due systematic sequence the species of the immense family Fringillidæ, numbering, according to Mr. Sharpe's reckoning, 559 species. All but 30 of these are represented in the collection under his charge, which includes "the types of no less than 125 species," and 9443 specimens. With such rich material at his command, including many additional specimens loaned to him for use in the preparation of his great work, he still expresses himself as unable to arrive at satisfactory conclusions respecting "the value of the various subspecies and varietal forms found in North America." With the acquisition of the Henshaw Collection of North American birds, recently purchased by the British Museum, doubtless Mr. Sharpe will be able to settle, at least to his own satisfaction, many of these doubtful points, on which it is to be hoped he will soon give us his revised opinions, whatever they may prove to be.

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*The numbering of the ‘Check-List' is also preserved. On this point we beg to suggest that a continuous serial numbering would in all similar cases be preferable, since it shows at a glance, and without the labor of counting, the number of species treated, while the statement that the A. O. U. nomenclature is followed renders the use of the A. O. U. numbers superfluous.

†Catalogue | of the | Passeriformes, | or | Perching Birds, in the | Collection | of the | British Museum. | — | Fringilliformes: Part III. | Containing the Family | Fringillidae. | By | R. Bowdler Sharpe. | London: | Printed by order of the Trustees. | 1888. 8vo. pp. xv + 871, pll. xvi. Forming Vol. XII of ‘Catalogue of the Birds in the British Museum.'

Respecting the relation of the Finches and Tanagers, Mr. Sharpe observes: "The line of demarcation between the families *Fringillidæ* and *Tanagridæ* seems to be an extremely arbitrary one, and many genera included by me as Finches are just as likely Tanagers, if there is really a definable character for the separation of the two families. Some distinctive characters may ultimately be discovered in the anatomy of the *Fringillidæ* and *Tanagridæ* which will serve to separate them; but at present the whole classification of these birds is highly unsatisfactory"—an opinion we believe to be widely shared by other ornithologists. Respecting genera and higher divisions Mr. Sharpe says: "No one as yet has propounded a satisfactory classification of the *Fringillidæ*, the difficulty consisting in the complete connection which exists between the various Finches and Buntings. Any one who has worked upon a large fragment of the family must acknowledge that the definition of the genera is difficult and the recognition of subfamilies almost impossible. The *Fringillidæ* naturally group themselves into three divisions — Grosbeaks, Finches, and Buntings; but numerous forms connect them, being referable to the confines of any of the three groups." He deems it possible, however, that their osteology and general anatomy, when fully examined, may afford additional generic characters.

In general character the present volume, in respect to methods of treatment and principles of nomenclature, is so strictly similar to other volumes of this series by Mr. Sharpe, already noticed at length in this journal, that nothing further on these points need be said. We notice that 4 genera, 13 species, and 11 subspecies are characterized as new or renamed, as follows: *Genera:* (1) *Rhodospiza*, gen. nov; type and sole species *Fringilla obsoleta* Licht. (2) *Pseudochloris* = *Orospiza* Cab., 1883, *nec* Kaup. 1829. (3) *Schistospiza*, gen. nov.; type *Emberiza griseocristata* D'Orb. & Lafr. (4) *Rhodospingus*, gen. nov.; type *Tiaris cruenta* Less.—*Species:* (1) *Spermophila albitorquis*, sp. nov., ex Mexico — "similar to *S. torqueola*." (2) *Amaurospiza æquatorialis*, sp.

nov., ex Ecuador, and (3) *A. axillaris*, sp. nov., ex Brazil, both similar to *A. concolor*. (4) *Fringilla maderensis*, sp. nov., ex Madeira. (5) *Chrysomitris sclateri*, sp. nov. = *C. icterica* pt. Scl. (6) *C. stejnegeri* = *C. xanthogastra* Scl. & Salv., *nec* Du Bus. (7) *Sycalis taczanowskii* = *Gnathospiza raimondi* Tacz., nec *Sycalis raimondi* Tacz. (8) *Carpodacus roseipectus* = *C. frontalis* Bp. & Schl. (*nec* Say) and C. *hæmorrhous* Scl. (*nec* Wagl.) (9) *Zonotrichia whitii* = *Z. strigiceps* White *nec* Gould. (10) *Porphyrospiza pulchra* = *Cyanospiza cyanella* Pelz. =? *Emberiza cyanella* Sparrm. (11) *Poospiza boliviana*, sp. nov., ex Bolivia. (12) *Pseudochloris mendozæ*, sp. nov., ex Mendoza—"similar to *P. aureiventris*." (13) *Rhodospingus mentalis*, sp. nov., ex Puna Island—similar to *R. cruentus*.—*Subspecies:* (1) *Guiraca argentina*, sub *G. cyanea*. (2) *Spermophila whiteleyana*, and (3) *S. colombiana*, both sub *S. plumbea*. (4) *S. polionota*, sub *S. cucullata*. (5) *Chrysomitris boliviana* = *C. magellanica* D'Orb. & Lafr., *nec* Vieill. (6) *C. longirostris* = *Fringilla magellanica* Vieill.!—"merely a connecting link between *C. icterica* [Licht. = *C. magellanica* auct. pl.] and *C. siemiradzkii*." (7) *Passer griseigularis*, sub. *Passer domesticus*. (8) *Sycalis jamaicæ*, = *Crithagra* [= *Sycalis*] *brasiliensis* Gosse, *nec* Gm. (9) *Pyrrhospiza humii* = *P. punicea* Bidd., *nec* Hodg. (10) *Peucæa homochlamys* (= *P. ruficeps* var. *boucardi* Hensh. *nec* Scl. = *P. r. scottii* Sennett, Jan. 1888, ex "Southern New Mexico and Arizona." (11) *Phrygilus saturatus*, sub *P. aldunatii*—"a form of *P. punensis* [Ridg.]," connecting the latter with *P. atriceps*.

Respecting nomenclatural matters, relating more especially to North American birds, the following points may be noted: *Hesperiphona* and *Passerculus*, treated as subgenera in the A. O. U. Check-List, are ranked as full genera; *Hedymeles* is preferred to *Habia*, *Phonipara* to *Euethia*, and *Cyanospiza* to *Passerina; Leucosticte* is treated as a synonym of *Montifringillai Pipilo chlorurus* is referred to the genus *Atalaptes* Wagl.; *Spermophila morelleti* is restricted to Yucatan, Guatemala, Honduras, and Costa Rica, and the Texan and Mexican birds, separated as a distinct species, under the name *Spermophila parva* Lawr. From the material we have examined we should consider the Rio Grande form as at best only a subspecies of *S. morelletti*, under the name *S. morelleti parva* (Lawr.). No reference is made, even in the synonymy, to *Guiraca cærulea* var. *euryncha* Coues, now, and as we believe properly, recognized by Ridgway as a tenable subspecies. *Spinus notatus*, of our Check-List (*Carduelis magellanicus* Aud.) is referred to *Chrysomitris icterica* (Licht.) Scl. (= *C. magellanicus*, auct. pl.), a South American species, not found north of Brazil, Mr. Sharpe stating (p. 218, footnote) that the bird figured by Audubon is "undoubtedly *C. icterica* or *C. capitalis* [a subspecies of *C. icterica*], and not the black-winged *C. notata*, which at present is not known to occur within North American limits."

In respect to subspecies of North American birds, Mr. Sharpe, admittedly in some instances, follows American writers, not having sufficient material to reach an independent conclusion; in others he ignores them, agreeing with them, however, frequently, but often differing from them, with the result of admitting some of our weakest claimants to recognition, while some of those best entitled to such treatment are reduced to pure synonyms! In not a few instances, however, he has exercised his conservatism with excellent discrimination. As in former volumes, binomials are applied alike to species and subspecies, the latter being distinguished by the prefix "Subsp." and a Greek letter. This is the case when the latter are recognized only provisionally, even as "races," and affirmed to be merely "connecting-links."

Here and there are to be noticed some singular rulings involving the principle of priority, as for example, at p. 175, where *Fringilla maderensis* is described as a new species, to be followed on the next pages by "subspecies," described thirty to sixty years earlier, of this new "species," namely: "Subsp. α. *Fringilla morelleti* [Pusch. 1859,"], and "Subsp. β. *Fringilla canariensis* [Vieill. 1817]," all being insular forms of a common stock. We have also *Acanthis exilipes* (Coues, 1861), with a subspecies of it, *hornnemannii* (Holbœll, 1834), described nearly thirty years earlier!

The volume, however, like its long series of predecessors, is too valuable a hand-book, and in general too excellently done, to render criticism a gracious task.—J. A. A.

Shufeldt on the Osteology of the Icteridæ and Corvidæ.—In a memoir of some 40 pages, illustrated with two beautiful plates, Dr. Shufeldt describes in detail the skeleton of our Western Meadowlark (*Sturnella magna neglecta*) and compares its osteology with that of other forms of the Icteridae and Corvidæ.* Selecting the genus *Sturnella* as a standard, he extends his comparison to not only various other forms of the Icteridæ but to the leading types of the Corvidæ, as represented in North America. The "most useful and essential characters" of some half-dozen species in each family, and also of the Fringilline genus *Calamospiza*, are tabulated, and a series of 'conclusions' are given based on the data thus provided. He expressly states that these conclusions are based wholly on osteological characters, but is careful to record his conviction that the "true affinity of forms can only be arrived at through a correct appreciation of the *entire* structure after proper comparisons have been made." He considers that *Xanthocephalus* is the nearest ally of *Sturnella*, and *Icterus spurius* the most remote, among strictly Icterine birds, while outside of the family *Sturnella* "finds its nearest relation probably in *Cyanocephalus cyanocephalus*." *Icterus* finds, as would be expected, "its nearest allies in the genus *Agelaius*." "*Molothrus*," he says, "is a genus of Finches, and as such should be placed in the family Fringillidæ, where it more properly belongs," and where he has "no doubt . . . . *Dolichonyx* also belongs . . . .

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*On the Skeleton in the Genus *Sturnella*, with Osteological Notes upon other North American *Icteridæ*, and the *Corvidæ*. By R. W. Shufeldt, M. D., C. M. Z. S., M. A O. U., Memb. Am. Soc. Naturalists, etc. Journ. Anat. & Phys., Vol. XXII, pp. 309-350, pll. xiv, xv.

Osteologically, *Molothrus* and *Pipilo* are not so very unlike." While all this may be true, so far as the skeleton may afford a clue to affinities, other features, we are convinced, obviously point to a decidedly Icterine affinity, rather than Fringilline, for both *Molothrus* and *Dolichonyx*, particularly the texture and general character of the plumage, their musky Icterine odor, pose, carriage and *habitus* in general. These in themselves are but superficial indices and traits of character, so to speak, which point to an Icterine ancestry, and general Icterine structure. It should be further noted that some of the exotic species of *Molothrus* make a close approach to the genus *Agelaius*, and that *Neospar*, *Curæus*, and *Leistes* are not far removed.

Among the Oscines we should not, *a priori*, look for evidence in the skeleton to decide nice points in affinity so much as to other and more superficial clues to relationship. In further illustration of this general point is Dr. Shufeldt's conclusion that the true affinities of the Magpie are Corvine and not Garruline, although this bird may be, as Dr. Shufeldt puts its, "so far as its skeleton is concerned . . . . *a Crow*, pure and simple." While it is important to compare birds of allied groups in respect to minute osteological differences and resemblances, the results are obviously, as Dr. Shufeldt so strongly affirms, to be correlated with the general structure, and conclusions, respecting affinities, to be final, must rest on more than a single system of characters.

The plates give figures of skull and pelvis of *Sturnella m. neglecta* and *Pica pica hudsonica*, the pelvis of *Corvus americanus*, and the skull of *Xanthocephalus xanthocephalus* (two examples).—J. A. A.

Shufeldt on the Skeleton of the Carolina Rail.—Another recent paper by Dr. Shufeldt contains a detailed description of the osteology of *Porzana carolina*,* with figures of the principal elements of the skeleton. The pelvis is found to possess many points in common with that of *Geococcyx*, each having a probosis and the same peculiar pattern of the pre-acetabular portion of the ilium. Various rather peculiar modifications of other skeletal elements are pointed out.—J. A. A.

Vernacular Ornithology.† — This is a wonderful world of checks, balances, compensations, and reactionary running-gear. For example, the A. O. U. Committee has upset all the technical names of birds that could thus hardly be dealt with, and Mr. Trumbull has set up all the vernacular names that could be treated understandingly. Thus ornithology fattens and flourishes, as on loaves and fishes; for has not our author wrought a veritable miracle; namely, the filling of a 'long-felt

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*Osteology of *Porzana carolina*. (The Carolina Rail.) By R. W. Shufeldt, M.D. C. M. Z. S. 8vo, pp. 16, with 7 cuts in the text. Reprinted from the 'Journal of Comparative Medicine and Surgery,' July, 1888.

† Names | and | Portraits of Birds | which interest gunners | with descriptions | In language understanded of the People | by Gurdon Trumbull | New York | Harper & Brothers, Franklin Square | 1888 | 1 vol. 8vo. pp. viii, 222.

want'? (Not that any one has actually felt that want until the void has been filled; but it existed, and only needed filling to be felt and grow by what it fed upon.) Even ornithologists, however hopelessly mired down in the mazes of their 'shoptalk,' as our irreverent friend terms their technical vocabulary, may find in this book much to their profit. Seeing that theirs is not the only language that is weighted with synonymatic woe, they may take heart again. Many of them have 'viewed with alarm,' as the politicians say, the great load of wordy rubbish that our science carries; the spectacle of a bird with half a dozen generic, a dozen specific names, and several dozen combinations of these two terms has a chastening effect upon the mind. But now, with risen spirits, we can 'point with pride,' like statesmen, to the synonymatic confusion worse confounded which our mother tongue offers to console us, if not to absolve us from our sins. For here we have a thousand and more names for three-score birds! *Et tu Brute*, Mr. Trumbull?

But to be serious, as befits the rich embarrassment with which the author endows us, let us examine this remarkable work. It treats all the game-birds of Eastern North America—the natatorial, gallinaceous, limicoline and paludicole birds ordinarily pursued, for sport by "that helpless but interesting creature, 'the true sportsman,'" or for profit by "our gunners, a class of men who earn a livelihood by shooting birds." These we find to be sixty-one in number. They are first named in strict accord with the rules and regulations for such cases made and provided by the A. O. U. Committee, the dogmas of which deathless doers of deeds nomenclatural are accepted by Mr. Trumbull with orthodox humility. Then comes a brief description, in language 'understanded of the people,' together with a statement of habitat in each case, the range being usually drawn from the same fountain of infallibility whence the sacred scientific names issue: for in the beginning was the word, and the word was with the Committee. With these data comes a portrait in each case — a striking silhouette, or symphony in black and white, struck by the well-known hand of Mr. Edwin Sheppard, who has made better likenesses of more birds than any other American artist now living. Having thus marked down his bird, so to speak, Mr. Trumbull proceeds to bag his game with a wealth and ingenuity of device that excite our unbounded admiration. It is truly an infinite variety that neither age can stale nor custom wither —a bounteousness, a plenitude, a very plethora, the fulness whereof is exhaustless. Allah is said to be invoked by the pious Mussulman under ninety and nine aliases, and history but repeats itself in the myrionymy of the game birds of America. A thousand names, for three-score birds, by a single prophet!

The index occupies a little less than 11 pages, 3 columns to a page, over 50 names to a column. Were it solid, this would represent about 1881 names for the 61 birds; but some are entered twice or thrice, and some columns are not full. Making the very wide allowance of 881 names, there may be supposed to be at the least a thousand, or an average of about six teen vernacular names to every bird.

It is instructive as well as entertaining to analyze some of the cases, to see exactly how such a result is reached: for it is a lesson in the very genesis of language. The origin of the native names of birds is an illustration of the way names of any other things come to be. Grammar and science and such like have nothing to do with making speech; they talk about it when it has been made; they are the offspring, not the parents, of language — a fact in natural history which some grammarians might ponder to their advantage. Savages and other animals are the real masters of words, — of words which tyrannize over nobody but philologists — of words, which lexicographers fancy they use, when in fact the words are using them all the time, and sometimes very badly. We speak feelingly, being under dictionary bonds ourselves: but let us turn from this digression to the Ruddy Duck, for an example of what we mean.

Erismatura rubida was first called *ruddy* duck in the books by Wilson in 1814; Mr. Trumbull finds for it sixty-six vernacular names. Some of these, it is true, are mere variants or doublets of one another, like *broadbill* and *broadbilled dipper* or *dapper* or *dopper;* but at least forty of the lot are fairly separate and distinct designations developed from almost as many origins, etymologically speaking. They fall in several categories or series, in the examination of which it would appear that almost every personal peculiarity of the fowl, in points of size, shape, dress, manners and habits has been pitched upon for an epithet by somebody, somewhere. Thus, this bird is a *blue-bill*, a *broad-bill*, a *hard-headed broad-bill*, a *sleepy broadbill;* it is a *broad-billed dipper*, and a *mud-dipper*, and a *horseturd dipper*—a *dipper*, a *dapper*, a *dopper*, unqualifiedly. It is a *coot*, a *boobycoot*, a *bumblebee coot*, a *horseturd coot*, a *creek coot*, a *sleepy coot*. It is a *sleepyhead*, a *sleepy duck*, a *sleepy brother*. It is a *spoonbill* and a *butterball;* a *spoonbilled butterball*, and a *butterduck*, *butterbowl*, *butterscoot*, *blatherscoot*, *bladderscoot*, and generally a *blatherskite*. It is a *fool-duck*, a *deaf-duck*, a *daub-duck;* a *bull-neck*, *shot-pouch*, *stub-and-twist*, *steel-head*, *tough-head*, *hickory-head*, and a regular *hardhead*. It is a *bristle-tail*, *pin-tail*, *quill-tail*, *spinetail*, *stick-tail*, *stiff-tail*, and a *heavy-tailed duck* altogether. It is a *dunbird*, *dun-diver*, *ruddy diver*, *diptail diver;* a *brown diving teal*, a *saltwater teal*, a *goose-widgeon*, a *widgeon-coot*, and absolutely a *widgeon;* likewise, a *water-partridge;* item, a *leather-back* and a *paddywhack;* it is *hardtack* and a *light-wood knot;* a *dinkey* and a *dickey*, a *greaser*, a *paddy*, a *noddy*, and a *rook*. All of these and other things too, is this worse than dodecasyllabified fowl — this *Erismatura rubida*, which, to crown all with a subtle pleasantry, Mr. Turnbull tells us is even known by its proper book name of ruddy duck among the market gunners and city sportsmen.

No one who is familiar with the bird can fail to see instantly some point about it which has been seized upon instinctively by popular apprehension. As the New York 'Nation' recently remarked, these names are such as any son of Adam out of Eden might have pitched upon, had he been set to the same task that our first parent is alleged to have had imposed upon him. The further we follow our agreeable author, the more impressed we are with the patness and transparent originality of these popular designations. Like other nicknames and byewords they "just growed." Let us try once more, and take the case of the Scoters which are so common along our Atlantic Coast, confining ourselves to one point, the beak. This is all 'out of perspective,' so to speak, and fantastic in color decoration besides, so that it catches the eye at first sight. This vivid impression upon the thinking-cap of the natural man is instantly translated into speech, and from his tongue-telephone fly such winged words as *skunk-bill*, *muscle-bill*, *plaster-bill*, *picture-bill*, *blossom-bill*, *butter-bill*, *butterboat-bill*, *hollow-bill*, *copper-bill*, and *broad-bill*, *morocco-jaw*, *goggle-nose*, *butternose*, *snuff-taker*, and so on. And it goes without saying that the bill is not the only point about these birds that is available for like purposes.

We do not propose to import Mr. Trumbull's book bodily into 'The Auk,' for that would be to deprive our readers of the pleasure they will find out for themselves in handling this delightful accession to our shelves. Nor would we excite needless alarm: yet, which one of us, though pretty knowing in birds, can identify all the following names without our author's assistance? Alwar grim, assemblyman, badger, barren hen, beetle, blackjack, booby weakhorn, broady, brownie, bunty, caloo, chuckatuck cockawee, cowfrog, darcall, dunter, earl, fizzy, fute, granny, hound, humility, iron pots, jingler, krieker, looby, lord, lousybill maggot snipe, mealybird, mommy, mosshead, mowyer, night-peck, noddy, old smoker, pelick, pike-tail, pilot, pishaug, pulldoo, quandy, quink, rodge, scoldenore, shrups, simp, skirl-crake, smee, smoker, snowl (it makes one creepy to think what a terrible thing a 'snowl' must be!), southerland, sparling fowl, split-tail, squam, stib, timber-doodle, triddler, tweezer, wamp, weaser, whiffler, yelper.

Next after the scholarly, literary complexion of this book the thing we admire most is the author's care in sorting out the names and affixing them to the right bird. A living language is even more elusive and illusory than the dead speech of our technical treatises, if happily such acme of mirage be a natural possibility, and it must have taken a great deal of close work to arrange the synonymy and homonymy. It is not always a case of sixteen names per bird: it is sometimes a matter of sixteen birds of one name. It is the very gist of dialecticism that it shall be pliable, yielding to every impress of geographical environment. A word is a very different thing when twanged through the nose of a Down-east fisherman and smacked by the lips of a Southern darkey; besides which orthoepic changes, different sets of people *think differently* about the same thing, and consequently call it differently. So it may be said of our game birds, with slight paraphrase of a saying of one of the friends of our youth, "*nomen non animum mutant, qui trans mare volant.* In every case, Mr. Trumbull has been at pains to pin the name down to its proper habitat; a matter, the importance of which to his success in this venture he has evidently appreciated. And not only this: for, since time as well as space has to be taken into the total reckoning, words that are at their full vigor of life are properly distinguished from those that are dead or dying of old age, and those that are just coming into existence.

The serious defects and very numerous faults of this treatise are those which we have not discovered and therefore decline to mention. The wingshooter does not live who never made a miss. On the contrary, plenty of critics continue in existence who do not find what they want in books because they do not know what they ought to want. Our advice to all such, were it asked, would be, to waste none of their precious time in finding fault with anybody until after they have done better themselves. This practice would greatly promote industry among critics, and might convert some of them into authors in due course of time, besides sparing us much illiterate literature. Those who like to sample a bushel of wheat by the grain of chaff which may reward their diligent search will continue to amuse themselves in this manner until they discover the first rudiments of sound book-reviewing. It is a young rooster that would rather put on than take off his gaffs.—E. C.

Allen on the Emargination of the Primaries.—A recent episode, not lacking interest to one with any sense of humor, has recalled attention to the mechanism of the wing and the mechanics of the flight of birds, and has had one useful end in explaining the purpose of the emargination of the primaries in Hawks and many other birds. It seems that Professor W. P. Trowbridge, of New York, eminent in many walks in science, conceived the idea, groundless in point of fact, that the emargination served to 'interlock' the primaries under some circumstances; and in this novel notion he received the support of Professor J. S. Newberry, the distinguished geologist and naturalist. The subject was laid before the New York Academy of Sciences, at a meeting held Oct. 17, 1887,* and resumed Dec. 12, 1887,† when considerable discussion was elicited, and at the same time papers appeared elsewhere.‡ At the meeting of the Academy of Dec. 19, 1887, the subject was resumed, eliciting a warm discussion among the members present.§ The ornithologists, without exception, declined to consider the interlocking theory in any other light than that of a mistake. The outcome of the affair, which has closed the subject to date, was an address by Professor J. A. Allen, before the Academy, Jan. 9,

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* Trowbridge, W. P. "A discovery by C. C. Trowbridge regarding the purpose of emargination in the primary wing-feathers of certain birds." Trans. N. Y. Acad. Sci. VII, Oct.-Nov. 1887, pp. 19-21.

† Trowbridge, W. P., Newberry, J. S., and others. "The Mechanism of Flight in Soaring Birds." Trans. N. Y. Acad. Sci., VII, Dec. 1887-Mar. 1888, pp. 75-78.

‡ Newbury, J. S., "The Flight of Birds," Science, Dec. 16, 1887, p. 290.

Coues, E., "The Mechanism of the Flight of Birds," Science, Dec. 30, 1887.

Newberry, J. S., "The Flight of Birds," Science, Jan. 6, 1888, pp. 9, 10, and Trowbridge, W. P., Id., ibid., p. 10.

§ "Discussion of the Mechanics of Bird Flight," by Professors Trowbridge, Newberry Allen, Messrs. D. G. Elliot, G. B. Sennett, E. E. Thompson, and N. L. Britton, and notes on the "Soaring of Birds," by Dr. J. B. Holder. Trans. N. Y. Acad. Sci., Dec. 1887-Mar. 1888, pp. 80-87.

1888.* This important paper, the special subject of the present review, has three main heads:— 1. It discusses the general problem of flight, and especially of soaring flight, taking the usual position, that the mechanics of soaring are referable to those of the paper kite, in which the figure of the bird compares to the body of the kite, and its weight to the resistance of the string of the kite. This proposition was very fully discussed and illustrated in an unknown paper by an unknown man, thirty years ago.† 2. A concise description of the eighteen known muscles of the forearm and manus of birds, and their effect in moving the parts upon which they lie.‡— 3. The special consideration of the emargination of the primaries, forming the body of the paper. This matter is so interesting, not only in reference to the 'interlocking' theory, but in its general bearing, that we transcribe it in full for the readers of 'The Auk,' who will no doubt agree with us as to its entire soundness:

"It has been intimated that the emargination in the primaries of hawks and other soaring birds gives evidence of interlocking, being apparently a provision for this purpose. That it has suggested the theory of interlocking is quite evident, but it has no further bearing on the subject. That it is not distinctively characteristic of soaring birds has been abundantly shown. The purpose of this structure evidently varies in different birds.

"In some birds, as the woodcock, various genera of pigeons, flycatchers, and humming-birds, the falcate tips of the outer primaries give rise to musical sounds, of somewhat varying character in different species, due to the rapidity and angle with which they strike the air in rapid flight, the emission of the sound being voluntary on the part of the bird, and often forming a part of its amatory demonstrations, as does song or certain peculiar notes in many song-birds. In herons, many water-birds, hawks, eagles, owls, vultures, etc., it is apparently the elimination of a part of the vane which, if present, would prove only an impediment and an obstruction in flight. The emargination extends, it will be observed, from the point where, in the fully extended wing, the inner vane fails to fill the entire space between two contiguous quills. The vane becomes very weak and flexible along its edge, and requires the support of the overlying feather to keep it smooth and intact, so that were the vane to retain its full width to the tip of the feather, on which the air impinges with the greatest force in flight, it would have no support from the contiguous feather, and would be too weak to resist the air; it would consequently be more or less rolled upward at its free edge and prevent the free closing of the tips of the feathers; it would not be firm enough to give much sustaining power, would be in the way, and become folded and rumpled in the closing of the wing. Therefore just that useless and obstructive

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[*] Allen, J. A., "On the Structure of Birds in Relation to Flight, with Special Reference to Recent Alleged Discoveries in the Mechanism of the Wing," Trans. N. Y. Acad. Sci., Dec. 1887-Mar. 1888, pp. 89-100.

[†] Davidson, R. O., "A New Theory of the Flight of Birds," 8vo., paper. Washington, 1858, pp. 28, plate.

[‡] See paper in present Auk, p. 435.

portion is the part eliminated by the emargination of the vane. To give the portion of the vane thus cut away sufficient strength and breadth to add its share to the sustaining power of the wing, the vane would have to be thickened to make it more rigid, and broadened to fill the wide interval between the tips of the feathers, thus making a heavy club-shaped clumsy tip to the feather, and obviously decreasing the efficiency of the wing as an organ of flight.

"Further evidence of the pertinency of this explanation of emargination is afforded, when we recall the fact that emargination is confined to a certain type of wing, and that when absent the wing is of an entirely different type as regards its general form. The wing of the frigate-bird well illustrates the form of wing in which there is no such emargination. It is a very long, acutely pointed wing, in which the first primary is the longest, the second, third, and all of the following being successively shorter, and all sharply pointed, so that when the wing is fully extended there is practically no open space between the tips of any of the primaries.

"There are three principal types of wing in relation to its form:

"I. A very long, pointed wing, in which the first primary is the longest, and all the outer primaries are narrowed toward the tip, and successively decrease rapidly in length, rendering no emargination necessary. Examples: man-of-war birds, albatrosses, shearwaters, gulls, terns, plovers, sandpipers, swallows, swifts, etc.

"II. A short, rounded wing, in which the tip is formed by the four or five outer primaries, which are sub-equal in length. Here, owing to the shortness of the wing, the tips of the primaries are not separated when the wing is fully extended. Here no emargination is necessary, and none exists. Examples: sparrows, and the smaller song-birds in general; also rails, quails, tinamous and many grouse.

"III. A long, pointed wing, but in which the tip is formed not by either the first or second primaries, but by the third, fourth, and fifth, and in which the six or seven outer primaries form the point of the wing, and are graduated in length from the longest, which is about the fourth or fifth, outwardly to the first, and inwardly to about the seventh or eighth. This form of wing, in which emargination is present, is typically exemplified in hawks, eagles, buzzards, vultures, ravens, crows, etc.

"Between these types of wing there is every stage of intergradation, with corresponding variation in the emargination of the primaries, in the form of wing characterized by this structure. The true falcons have a very pointed wing, in which the longest primary is the second; the first is somewhat shorter, and is the only quill showing emargination. In this the emargination is slight, and extends for only about two inches. If we remove the first primary, we have a wing in which the outer primary is the longest, the next succeeding primaries being each shorter than the one next in front, resulting in a long pointed wing, in which the primaries are narrowed toward the tip, and recede successively in length, giving the same form of wing we have in the man-of-war birds, in swallows, swifts, humming-birds, night-hawks, etc., in which there is never any emargination.

"Again, the emargination varies in extent, being limited in many birds to the first primary alone, and to the extreme apical portion of this; in others it occurs on the apical portion only, say for two to four inches, of perhaps the outer four to six primaries; while in very many birds, including the turkey buzzard and its allies, and many hawks, it extends to the basal third or fourth of all the outer primaries.

"Having now shown that interlocking does not and cannot take place, it may be worth while further to point out that it is unnecessary.

"In a soaring bird, no great muscular tension is called into action. The large pectoral muscles, which move the wings up and down, are in a state of equilibrium, and under very slight tension, not more than are the muscles of a man's arm when the arm is in an ordinary position of rest. The mechanism of the bony framework is such, as has been already shown, that the wing is kept extended in such a way that there can be only very slight strain on any of the numerous muscles of the wing itself. The extension of the primaries is automatically effected by the extension of the wing, and results in no special strain, when once the wing is fully extended, upon any of the muscles whose function is to flex and extend the outer or phalangeal segments of the pinion. Hence the comparison made at the meeting of December 12th, of a man's arm held extended at a right angle to the body, in an unnatural position, with a bird's wing held extended in soaring, in a perfectly natural position, was wholly irrelevant.

"The hypothesis of the interlocking of the primaries during protracted soaring, to conserve energy and lessen fatigue, has not only no basis in fact, but is entirely gratuitous."—E. C.

Birds of Morris County, New Jersey.—Nearly a year ago the list to which attention is now called* was published in a local newspaper, and as the distribution of New Jersey birds is known inferentially rather than by any recent and reliable published information, such an excellent list as the present one seems worthy of wider notice. It is the result of over four years' work in the northern part of the State and numbers 205 species and subspecies, not a large number, to be sure, but it must be remembered that Morris county is inland, and the usual array of water birds that goes to swell many lists is therefore wanting, although some occur as stragglers. The summer residents are mostly Alleghanian with a considerable sprinkling of Carolinian forms, such as *Cardinalis cardinalis*, *Seiurus motacilla*, *Mimus polyglottos*, *Thryothorus ludovicianus*, *Parus bicolor*, and others less distinctive, while little needs be said of the migrants and accidental visitors recorded. Few local lists can boast of two species relegated to the hypothetical list of the A. O. U. Check List A specimen of *Helminthophila lawrencei*, and two of *H. leucobronchialis* are here recorded, and reference is made to the type of the former species secured just over the line, in Essex County. The brief annotations refer mostly to the abundance of the species and the dates of rare captures are usually given. There are four species that one would expect to find included which have evidently not been met with by our author, *i. e*, *Empidonax pusillus traillii*, *E. acadicus*, *Geothlypis formosa*, and *Turdus aliciæ* (including, perhaps, *bicknelli*). These are found near New York City, where the fauna may be said to be almost identical with that of Morris County, but with these exceptions the list seems complete save for the probable future records of accidental visitors. Though *Porzana carolina* is called a "common migrant," it has been known to breed in the County near Whippany, and it may breed abundantly. *Ammodramus caudacutus* is said to be "not uncommon." Occurring as it does on fresh water marshes, the question naturally suggests itself, may this not be *nelsoni?* Further comment seems unnecessary. The list bears evidence of unusual care in its compilation, and is worthy of more prominence than is found in the columns of a local newspaper. —J. D., Jr.

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*A List of Birds of Morris County, New Jersey. By E. Carleton Thurber, True Democratic Banner, Morristown, N. J., Nov. 10, 17, 24, 1887.

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Zoologist, XII, Nos. 138-140, June-Sept., 1888.

GENERAL NOTES.

Note on the Correct Name of Symphemia semipalmata inornata Brewst.—In 'The Auk' for April, 1887 (Vol. IV, p. 145), Mr. Brewster described the western form of the Willet under the name *Symphemia semipalmata inornata*. In discussing the synonymy of the new form he concludes "(4) that *Totanus speculiferus* Cuvier (R. A., I, 1817, 351 [*lege* R. A. 2d ed., I, 1829, 531]) and Pucheran (R. et M. Z., III, 1859, 569 [*lege* R. et M. Z. 2^e sér., III, 1859, 369]) is not now determinable." It turns out, however, that the two forms of the Willet had long since attracted the attention of Dr. Sclater (Ibis, 1862, p 199, footnote), who, in examining specimens taken in Florida by Mr. G. C. Taylor, was "inclined to consider them distinct. The larger variety," he adds, "seems to have already been called by

Cuvier *Totanus speculiferus* (Règn. An. ed. 2, i, p. 531; Pucheran, Rev. et Mag. de Zool, 1851, p. 369), and should therefore be termed *Symphemia speculifera*." On referring to Cuvier I find that this author gave only a very brief description of the specimen which served as the basis of his *Totanus speculiferus*, although he says it stands higher on the legs and has a longer bill than *T. semipalmatus*. Pucheran, however, in 1851, in his important paper 'Etudes sur les types peu connus du Musée de Paris,' described with great detail Cuvier's type, which description shows it to be beyond doubt a winter example of Mr. Brewster's subspecies *inornata*. He especially says it is to be distinguished from "*Totanus semipalmatus* Tem." by the length of the bill, while his measurements of the specimen nearly equal the maximum for *inornata*, as given by Mr. Brewster.

It may be noted that none of the American citations of Cuvier and Pucheran, as given above, prove to be correct, indicating that these references have been generally given without verification.

The *Totanus crassirostris* Vieill. (1816), as Mr. Brewster claims, is unidentifiable, though pointing to *speculifera*, the bill being given as 2.50 inches long. The larger Western Willet should therefore stand as *Symphemia semipalmata speculifera* (Cuv.).—J. A. ALLEN, *Am. Mus. Nat Hist., New York City.*

A Second Maine (and Fourth New England) Specimen of Swainson's Hawk (*Buteo swainsoni*).—Through the kind offices of Mr. Manly Hardy I have just secured a Swainson's Hawk, which was killed about eight miles from Bangor in the town of Glenburn, Maine, May 19, 1888. Like the Gouldsboro (Maine) specimen which I obtained last year,* it is of the melanistic type, but not entirely black. It was sent in the flesh to Mr. S. L. Crosby of Bangor, and was examined by Mr. Hardy before the skin was removed.—WILLIAM BREWSTER, *Cambridge, Mass.*

Nesting of the Black Swift.—On June 6, 1888, I collected a set of five eggs of the Black Swift (*Cypseloides niger*). As far as I am aware, this is the first set of this species collected. The nest was in the cornice of a small wooden building on Yesler's Wharf of this city. The cornice was of the kind usually known as store cornice, the interior being divided into compartments by the rough brackets to which the planceer, facure, and deck were nailed. At one end of the cornice the deck or top was sprung up so as to leave an opening into the first compartment, in which the nest was made. The compartment was about twenty inches square.

The nest was composed of leaves, which were yet green, bits of paper, chips from a planing-mill near by, a few horsehairs, and straw, and was surrounded by a large quantity of loose straw. The leaves and paper formed the lining of the nest.

The eggs were white and were fresh, the birds having been sitting only two or three days. As will be seen, they are very uniform in size: they measure 1.00 × .71, 1.00 × .70, 1.02 × .70, .96 × .68, .96 × .68 inch.

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*Auk, IV, 1887, p. 160.

On June 28 I collected another set of four eggs of the Black Swift. This set was taken from the same nest as the former one, and presumably from the same pair of birds. Incubation had commenced, the embryos having just begun to form. The nest was composed of the same kind of materials as before, with the addition of a small piece of the tinfoil used to cover tobacco. The dimensions of the eggs are as follows: .96 × .67, .98 × .71, .99 × 69, 1.00 × .71 inch.

When this second set was taken the female had to be pushed off the nest in order that the eggs might be obtained.

In neither of these nests were the materials glued together with saliva, there being no trace of saliva about the nests. The nests were put together so loosely that they could not be preserved. Portions of the materials of which they were composed were, however, collected.

These birds are rather abundant here, and usually nest in the cornices of buildings near the water front, in the business part of the city. I have known of several nests which were built in galvanized iron cornices. It is, however, usually impossible to get at these places. I have tried for several years to obtain specimens of the eggs, but till now have found it impossible, although I have torn open three different cornices in hopes of getting them. — M. H. GORMLEY, *Seattle, Washington Territory.*

Xantus's Becard (*Platypsaris albiventris*) **in the Huachuca Mountains, Southern Arizona.**—On June 20, 1888, I secured an adult male, in breeding plumage, of this species in the pine forests of the Huachuca Mountains, at an elevation of about 7500 feet, and seven miles north of the Mexican boundary. (See Ridgway's 'Manual of North American Birds,' p. 325.) I am certain there were a pair of these birds, as I heard their very peculiar notes in different places at the same time, but the locality being so extremely rough and broken I only secured the one above recorded. Several times while collecting at high altitudes I have heard bird notes that I thought were these, but they were always on almost inaccessible mountain sides. Their note reminds one of the song of Stephens's Vireo (*Vireo huttoni stephensi*), but is not so long continued, and is harsher. From observing the actions of the bird I killed, I am sure its mate was in the vicinity, and probably nesting, although I have since carefully searched the place without success. This species will doubtless be found breeding in Arizona, as was *Trogon ambiguus.* — WILL. W. PRICE, *Riverside, Cala.*

Coccothraustes vespertina in Nebraska.—On March 12, 1886, a flock of eight Evening Grosbeaks appeared in this locality, and these are the only ones that have been observed by myself, or by anyone so far as I know.

I first observed them about 9 A. M. They were then feeding on the samaræ of the box elders, and were very easy to approach. The flock consisted of seven females and but one male. I secured the male and one female. The contents of both their stomachs consisted entirely of box elder seeds. Their habits of feeding were exactly as given by Mr. Keyes in the January 'Auk' (p. 114). The remaining flock of six females stayed for three weeks and then departed.—GEO. A. COLEMAN, *London, Nemaha Co., Nebraska.*

Tameness of the Pine Siskin. — On April 29, 1888, while walking near Oak Hill in Newton, Mass., I noticed two Pine Siskins (*Spinus pinus*), about a heap of hops by the roadside. One of them flew away at my approach, but the other remained there feeding, and, though perfectly able-bodied and in good condition, was remarkably tame. I stood watching him some time. After a while I reached out and stroked him, and finally succeeded in catching him in one hand. When I let him go, he flew off to some distance. Before I caught him, he went and perched in a bush near by and apparently went to sleep, putting his head over his left wing under the scapulary feathers, so that it was completely hidden. When I approached too near, he would take his head out and look at me and then put it back again when I drew back. The ground about there was sprinkled with droppings, showing that the birds had probably been there for some time. Was this bird affected by the hops, or is there any other explanation of his curious conduct? The hops were to be used as dressing for a field of grass. — FRANCIS H. ALLEN, *West Roxbury, Mass.*

Further Notes on Seaside Sparrows.—A series of six specimens of Seaside Sparrows kindly loaned me for examination by Mr. G. S. Miller, Jr., of Peterboro, N. Y., includes four specimens from Sapelo Island, coast of Georgia, one from Cedar Keys, and one from Corpus Christi, Texas. The Corpus Christi specimen (male, May 26, 1886) is typically *Ammodramus maritimus sennetti;* the Cedar Keys example (female, Jan. 30, 1880) is typical *A. m. peninsulæ*, as is also one of the four specimens from Sapelo Island, the other three being *A. maritimus*. All of the Sapelo Island specimens were taken in December, examples of both forms being labelled Dec. 14, 1887. Mr. Miller kindly wrote me concerning the Sapelo specimens before sending them, as follows: "They all seem to be true *A. maritimus*, excepting one female taken Dec. 14, which is, so far as I can see, typical *peninsulæ*. It agrees in almost every particular with a specimen taken at Cedar Keys, Fla., which I should refer without hesitation to this form. Should the Sapelo Island specimen prove to be *peninsulæ*, it would extend the range of that form considerably."—J. A. ALLEN, *Am. Mus. Nat. Hist., New York City.*

A Second Instance of the Breeding of the White-throated Sparrow in Eastern Massachusetts.— On the 13th and 14th of June (1888) I found a White-throated Sparrow (*Zonotrichia albicollis*) singing in Wakefield, Mass.; and on the 16th and 17th, in the same spot (a bushy roadside swamp), I saw a female of the same species. The male was in full plumage, and the identification was absolute in every case. I saw nothing more of either bird, as I left home on the 18th and did not return till July 11; but the presence of the pair (within a radius of two or three rods) for five days in the middle of June would seem to leave no doubt of their breeding. The only previous record of such an occurrence, so far as I am aware, is that of Mr. Browne, in the 'Bulletin of the Nuttall Ornithological Club,' Vol. V, p. 52.—BRADFORD TORREY, *Melrose Highlands, Mass.*

A Third Specimen of Lawrence's Warbler.—While collecting in a piece of low, swampy woods at Rye, Westchester Co., N. Y., on Aug. 31, 1888, I shot a Warbler, which, on the identification of Prof. J. A. Allen, proved to be a Lawrence's Warbler (*Helminthophila lawrencei*). This bird, an adult male, is in excellent plumage. In comparison with the specimen in the American Museum of Natural History, taken at Hoboken, N. J., the throat patch is a more intense black while the black stripe through the eye is broader, being of exactly the same extent as in *H. chrysoptera*. In its actions it resembled *H. pinus*, though, of course, I did not wait long to study its actions. The stomach contained very small beetles and larvæ.

This is the third specimen of this bird to date.—CLARK G. VOORHEES, *New York City.*

Notes on Helminthophila leucobronchialis.—On May 26, 1888, I captured a male *Helminthophila leucobronchialis* which from comparison with the original description appears to be typical. Length 4.80, spread 7.60 inches. The testes were 5-16 inch long. The stomach contained insects only. Attracted by a new song, I found it among the branches of an apple-tree close by. Apparently it was alone. During the half-hour I watched it, it alighted in the apple-trees in the orchard it was in every time but one, then, for a moment only, on a small hickory. The locality was dry, all the neighborhood being scrubby pasture with very little woodland.

On May 29 I heard this song again, and soon found the bird among the branches of a gigantic and solitary hickory in a high, dry, scrubby pasture-lot. It was extremely shy, but was unwilling to leave the spot. On the 31st I again saw it, feeding and singing in the same tree, and equally shy. Patient watching during three hours revealed nothing more than occasional short and apparently inquisitive flights to several hickory saplings growing about a hazel thicket in the edge of a bushy tract adjoining this pasture. Its errand there seemed to be more with an eye to something below in the bushes than for the sake of feeding. June 3, after ascertaining the bird's presence, I secreted myself and waited. Several times did it come in my vicinity, but only casually as it were, never evincing the least alarm; yet it certainly made the rounds of the aforementioned saplings more frequently than before. At last with more eagerness than usual it descended, and disappeared in the bushes (an unusual occurrence) where it apparently took possession of its nest, as in less than half a minute thereafter an *H. pinus*, the first I had seen in the neighborhood, flew hastily from about the same place. This occurred at about sunset, and between that and dark *leucobronchialis* did not again appear in sight. I had previously had it in view, or could hear its song, almost continuously. On several days following I searched this thicket thoroughly, as it seemed, and once succeeded in flushing a *pinus*, but could not even then find its nest. In company with *pinus*, *leucobronchialis* cautiously approached and surveyed me for a short time, then departed with no apparent misgivings. At all other times *leucobronchialis* was near by and always reconnoitred the track of my careful search when I had moved to some distance, then, apparently satisfied, pursued its avocations as before.

I was not able to visit the spot again until June 17, and neither then nor since have I found this *leucobronchialis*, but I did find a brood of several young being fed by an *H. pinus*, possibly the result of a union between the two. These two birds were the only ones of the genus which I had at any time detected in the locality.

During this time I had seen four other *H. leucobronchialis* (*i. e.* six in all, this season), and in widely separated localities, as follows:

June 1, one was seen for a moment only in a hickory tree whence it flew into an adjoining alder swamp. It was never seen afterward.

June 4, one in the edge of a dry woodland was watched some time, but never seen again, although upon a subsequent visit some time was spent in hunting for it.

June 10, two were seen by a friend and myself. One, among the branches of the taller trees in a pasture-lot adjoining a dry wood, was again seen June 19 and July 7, this being the latest date I have heard its song or seen the species. The other was seen about one hour later in a similar situation, but fully three-quarters of a mile from the first. I saw this one again June 22. It was always in full song, otherwise I might never have detected it.

The peculiarities of the species are numerous, especially its song, so that, aided by my field-glass, identification was perfectly satisfactory to me in each instance. Moreover, its leisurely movements in conspicuous places always gave good opportunity for study. By actual count all these birds with the exception of the one shot May 26 were seen in hickory trees seven times to three in trees of all other species combined. Its flight on many occasions was protracted to at least 400 feet, always, when so continued, to a tree towering far above the surroundings.

I have heard of one other *H. leucobronchialis* taken in Connecticut this year, at Stamford by a Mr. Hoyt.—EDWIN H. EAMES, *Seymour, Connecticut.*

Bachman's Warbler (*Helminthophila bachmani*) at Key West, Florida, in July and August.—The following extracts are from two letters received by the writer from Mr. J. W. Atkins, of Key West, dated July 30 and August 9 of the present year.

"I have the pleasure of announcing the capture on the 26th and 28th (July) and to-day of nine Bachman's Warblers, seven of the nine being well-marked examples, the other two being undoubtedly young birds without any black on the throat and breast, and two other birds taken in company with the foregoing about which I am doubtful.

"On the first mentioned date (26th July) I saw about two dozen of the birds, and could have taken more of them if I had been better prepared, but I had a large gun and mutilated several birds beyond use besides the four taken in a preservable condition. On the 28th I got one finely marked adult male, two young females without black on throat or breast, and two others of the genus that may not be Bachman's Warblers. The same day I saw two others. To-day (July 30) I took two fine adult males and saw two others.

"The Bachman's Warbler collected last year was taken on August 30, which would seem to give the species something more than a month's time to pass at this place; perhaps longer, as I had not been in the woods for ten days previous to the 26th (July), the first day they were noticed this year."

Mr. Atkins then expresses regret at the probability of his being unable to collect or observe further, at least for the present, his duties in connection with cable service to Cuba and the West Indies demanding his constant attention.

Happily, however, he was able to make further investigations and the following quotations from his letter of August 9, 1888, speak for themselves:

"I could not resist the temptation to follow up the beginning made with the Bachman's Warblers, so I took an hour with them at break of day on the 6th, 8th, and today (August 9).

"On the 6th (August) I got two birds and saw about two dozen others; broke my gun and had to leave them unmolested. On the 8th (August) I got five and saw about a dozen beside, not more than that number though. This morning (August 9) I got two and saw another half dozen. I found yesterday's [August 8] and today's [August 9] birds in a wild fig tree, feeding upon its fruit, and a walk over the ground where they had been seen on the other occasions failed to disclose any others. Yesterday there were quite a number of other *Helminthophilæ* seen with the Bachman's Warblers, today not more than a dozen were seen. I do not know what they were; didn't collect any of the others because I could not have taken care of the skins. The call-notes made by both the Bachman's Warblers and the other *Helminthophilæ* were similar, being a sharply uttered *twee* or *chee*. I am certain the Bachman's Warblers did not breed on this island. As to their having bred on the outlying and adjacent islands, I, of course, cannot say, but I believe them to have bred further away. For if they had bred near Key West I ought to have found them earlier than July 26, it being natural to suppose that, being so near, a few stragglers, at any rate, would have come along earlier than the main body, which seems to be passing now. I believe these early birds bred somewhere on the East Florida Coast — that is, if they are too early to be identified with those birds found as reported in the last 'Auk' (Vol. V, p. 323) at Lake Pontchartrain, and which were said to have passed on to the northward from there. Two years ago, perhaps not so long (not having' my 'Auk' to refer to I cannot tell), a Bachman's Warbler was sent to Washington from Sombrero Light House by its keeper, and as the Sombrero is eastward and north of Cape Sable, this would show a tendency of the species to migrate *up* the East Coast, taking Cape Sable and its vicinity as the diverging point.

"I will send you the entire series of Bachman's Warblers in a few days; the collection now numbers sixteen well marked adults, two young females, and two others that I at first thought to be Bachman's Warblers, but now feel sure are not."

Mr. Atkins concludes his letter of August 9 with some very instructive notes on the migrations of other Warblers, Vireos, and the like, at the point where he is located, which notes I hope to present to the readers of 'The Auk' at an early day in a more detailed manner than present space permits.—W. E. D. SCOTT, *Tarpon Springs, Florida.*

Dendroica coronata at Key West in Summer.—Mr. J. W. Atkins has forwarded to me for examination an individual of this species taken by him at Key West, Florida, on July 28, 1888. It is an adult female bird in very worn plumage.—W. E. D. SCOTT, *Tarpon Springs, Florida.*

Breeding of the Cerulean Warbler (*Dendroica cærulea*) in Niagara County, New York.—On May 30, 1888, while passing through a large wood, I noticed a nest on a fork of a horizontal limb of a small basswood tree, which I took to be the nest of the Least Flycatcher (*Empidonax minimus*). I also saw a pair of birds in a large tree, near the one containing the nest, but I was unable to identify them. On June 8 I found the bird on the nest, and on its leaving I shot it and was surprised to find that it was a female *Dendroica cærulea*. The nest contained three eggs when secured, but one or two fell from the nest when the bird left it. Incubation was nearly complete, and it was with difficulty that I succeeded in saving two good specimens and the broken shell of the third. I did not succeed in securing the male, but an hour before in another piece of woods half a mile distant I had shot by mistake another male of this species, which was also a surprise, as I had found but two of this species during ten years' collecting in this County, and they were both male birds, taken May 10, 1882, and May 11, 1883, and not over ten rods apart. I had come to the conclusion that they were to be found here only during migration, and rarely then. On leaving the woods after securing this nest, we passed into an old pasture lot or clearing in which were a few small trees left standing, and while digging out a set of four eggs of the Yellow-bellied Sapsucker (*Sphyrapicus varius*) I noticed another pair of *D. cærulea*, and on watching them found they were building a nest in a small basswood, also on the fork of a horizontal limb, about twenty feet from the ground and eight feet out from the trunk. I am so particular in describing the position of these nests, as in 'North American Birds,' Baird, Brewer and Ridgway, Vol. I,

p. 236, Audubon is quoted as finding one "placed in the forks of a low tree or bush, partly pensile, projecting a little above the twigs to which it is attached, and extending below them nearly two inches," while these are placed on the top of the limb, which is from one half to three quarters of an inch in diameter, and the nest does not extend below the centre. The dimensions of the nest are outside two and a half inches across by two inches deep, inside one and seven eighths by one and a quarter inches.

Audubon is also quoted as saying, "The eggs are five in number, of a pure white with a few reddish spots about the larger end," while these are bluish white with a wreath of reddish brown and lilac spots about the larger end, and small brown dots over the whole egg. The dimensions of the two saved are .70 × .52 and .71 × .52 inches. I sent the male and female *D. cærulea* to Dr. A. K. Fisher, of Washington. On June 23 I secured the second nest and eggs, also the female, but did not succeed in finding the male. The nest contained three eggs, also one egg of the Cowbird. These eggs are not as large as the first, measuring only .64 × .50, .63 × .49, .64 × .50 inches. The general color is the same, but the wreath about the large end is not as distinct. The nests are made of the fibre of the thistle and sparingly covered with lichens, and lined with a brown hair-like substance that I do not know the name of. On June 30 I found another nest in a piece of woods about one mile from where I took the others, but it was too high to be secured, and from the action of the female I concluded it contained young. On July 4 I secured three adult birds, one male and two females, also three young; all but one female were taken within twenty rods of where I secured the two nests and eggs. One female and two young were sent to Dr. A. K. Fisher, and one male and female and one young were sent to the Smithsonian Institution. July 7 I visited the same place and saw another brood of three young which seemed to be able to fly as well as the adults, although the old birds were feeding them; I did not try to secure any of these. July 14 I could not find one of this species at the same place. July 21 I found a late brood, but secured only the adult female and one young which I sent to the American Museum of Natural History, New York City, at the request of Mr. J. A. Allen. All the young of this species taken resemble the adult female with the exception that they have yellowish downy feathers on the breast and edge of wing.

On July 28 I again visited the same place, but did not see a Blue Warbler and came to the conclusion that they had moved southward.

In 'North American Birds' Dr. Brewer says that he has been informed that this species "abounds and breeds in the vicinity of Niagara Falls," although he does not say that any nests or eggs were secured, and as he also says "little is known of its breeding habits," I have here been more explicit in regard to my observations than I otherwise should have been.—J. L. DAVISON, *Lockport, Niagara County, N. Y.*

Dendroica cærulea at Seymour, Connecticut.—On May 10, 1888, I shot a fine adult female Cerulean Warbler from a flock of Parula Warblers with which it seemed to be associating. The locality was dry and somewhat elevated, with a growth of high hard-wood trees and but little underbrush. With its companions, the bird kept chiefly among the topmost branches where I watched it for twenty minutes until, leaving the Parulas, it gradually descended into the lower branches to some fourteen feet from the ground, when I shot it.

It measured: length 4.60, spread of wings 7.55 inches. Its stomach contained insects only. The largest ova in the ovary were about the size of No. 12 shot.—EDWIN H. EAMES, *Seymour, Conn.*

An Albino Blackpoll Warbler.—A male specimen of *Dendroica striata* taken by the writer at Upper Chichester, Delaware Co., Penn., May 12, 1888, during migration, displays such a remarkable variation of plumage as to merit special mention.

The entire crown, with the exception of three or four small black feathers over the eyes, is pure white, the edges of the feathers tipped with cream color which is more decided fringing the neck. The upper tail-coverts and rump are pure white, extending high up on the back and passing irregularly through the interscapulars and joining the white on back of neck and crown; rather silky across the rump. The interscapulars form an irregular bar across the shoulders. The scapulars and tertiaries are sparsely spotted with white, most prominent on the right side. The sides of breast are streaked as usual, although of a rusty color, rather obsolete as they approach the chin which is pure white. The throat and breast are ochroleucous. Otherwise the plumage is natural. The upper and lower mandibles, legs and feet, are deep yellow. The white feathers are immaculate from the quills out, none being edged or spotted with the natural colors.—J. HARRIS REED, *Ridley Park, Penn.*

Cistothorus palustris marianæ on the Coast of Georgia.—Of seven Long-billed Marsh Wrens taken by Mr. W. W. Worthington at various dates during November and December, 1887, and January, 1888, on Sapelo Island, Georgia, six prove to belong to the lately described *C. p. marianæ* Scott. The seventh bird is a typical *palustris.*—WILLIAM BREWSTER, *Cambridge, Mass.* = [illegible]

Capture of the Brown-headed Nuthatch near Elmira, N. Y.— While making some observations on the migration of birds, this spring, for the Division of Economic Ornithology of the U. S. Department of Agriculture, I had the good fortune to procure a specimen of *Sitta pusilla*, Brown-headed Nuthatch. I can find no record of its being taken in New York State before, and Dr. A. K. Fisher, of the Department, to whom I sent the bird for examination, says he can find no record of its being taken in our State. The bird is a fine adult male, and was taken at the Mountain House near this city, May 24, 1888.—EDWARD SWIFT, *Elmira, N. Y.*

Impeded Migration and Destruction of Birds at Chicago. — Usually at this time of year (May 20) the small land birds have passed us on their northward migration, but this spring the weather has been so unfavorable that they have been much delayed, the Warblers, especially, and have suffered great loss of life.

While it is usual to see many of these birds passing from tree to tree in the city, this spring on May 12 they were observed in great numbers scattered over the ground in open lots, and on the larger prairies within the city. Many were likewise noticed in the thronged thoroughfares in the business part of the town where some were run down by passing vehicles, and others met their death under the feet of pedestrians. They would permit a close approach, but when almost stepped upon would make a spasmodic effort to mount into the air, only to find themselves dropping back to the ground again, helpless, weak, and benumbed by the cold. This strange effect of the weather on the birds extended over many miles of country and across Lake Michigan to the east. The shores between Lake Forest, Evanston, and Chicago were bestrewn with lifeless birds which had been washed up by the waves.

Up to May 11 the weather, as recorded in my diary, was very changeable with spells of rain and cold. On that day it became bright, the mean temperature of the twenty-four hours being about 70° F., wind N. W., with a velocity of about sixteen miles an hour. This favorable day brought with it the usual influx of migrants from the south. They were especially numerous, flying all day, and at night the notes of Warblers were plainly heard on the streets below. But May 12 a decided fall in the temperature (the mean was 42° F.) with alternate cloudiness and sunshine, and a wind blowing about twenty-four miles an hour caught the birds en route and checked their further efforts to proceed north. On this day a few minutes' observation on the ground in the nearest vacant lot or street would reveal Black-and-yellow, Parula, Blackburnian, Chestnut-sided, Yellow-rumped, Bay-breasted, and Black-throated Blue Warblers, with an occasional male and female of the American Redstart, and to make the sight more pleasing the gorgeously colored male of the Scarlet Tanager. Not satisfied with such observations, on the next day, May 13, with the thermometer ranging between 34-45° F., I made a trip of a few hours with Mr. H. K. Coale to the south of the city where the houses are not built so closely, and found the birds similarly distributed.

With the exception of the White-bellied Swallow, which was seen flying South in small flocks, and the Black-and-white Creeper which was noticed engaged in its usual mission of climbing up the trunks of trees, the following birds were all noticed on the ground along our line of travel:

Tyrannus tyrannus.
Dendroica maculosa.
Setophaga ruticilla.
Sylvania pusilla.
Dendroica virens.
Dendroica æstiva.
Dendroica palmarum.
Dendroica pensylvanica.
Dendroica castanea.
Dendroica coronata.
Melanerpes erythrocephalus.
Regulus satrapa.
Sialia sialis.
Actitis macularia.

Troglodytes aëdon.
Empidonax minimus.
Galeoscoptes carolinensis.
Merula migratoria.
Turdus ustulatus swainsonii.
Geothlypis trichas.
Geothlypis philadelphia (♀).
Harporhynchus rufus.
Zonotrichia albicollis.
Zonotrichia leucophrys.
Seiurus aurocapillus.
Vireo olivaceus.
Seiurus noveboracensis.
Tachycineta bicolor.
Anthus ludovicianus.
Mniotilta varia.

It is hardly necessary to state that many of the above species are commonly found on the ground, but all of these birds were profoundly affected by the weather, allowing an approach which would be next to impossible under ordinary conditions. The Warblers could easily have been taken in a small hand net.—JOSEPH L. HANCOCK, *Chicago*, *Illinois*.

Reason or Instinct?—I made some observations last summer on the habits of the Blue Jay (*Cyanocitta cristata*) which, if not showing reason, certainly show a degree of sympathy and kindness worthy of imitation by animals of a higher order. Last August (1887) on an old farm in Jefferson County, Wisconsin, my attention was attracted by the notes of a Blue Jay, not the ordinary cry, which could be heard at almost any time, as they are very numerous there, but a series of regular calls followed by answers from a neighboring tree. There was something so peculiarly suggestive of a communication of thought about the sound, that I went to the place, and saw an old Blue Jay perched on a fence some distance from a tree where there were several others.

On my nearing the bird, the calls from the tree became more frequent and loud, changing from a low, pleasant, communicative tone to a shrill alarm which became more frequent and intense as I approached. Thinking that he must be injured in some way, I went cautiously up to him when I found that he was at least partially blind. The eyes were blurred and dim, and the lids nearly closed. I had little difficulty in catching him and found him to be an old and helpless creature with scarcely a vestige of his former beauty. The beautiful blue feathers were much faded, in fact, the general appearance of the bird was so different as to be apparent at a glance. The claws were very much worn, the bill dulled, and the primaries and tail-feathers ragged. Every feature suggested old age and feebleness. Yet he was cared for and watched as tenderly as was ever a young bird in the nest. No sooner had I caught him than there were at least a dozen Jays close at hand, whose sympathy and interest were manifested as plainly as could be without words. After a thorough examination, I liberated him, when he flew in the direction of the sound of the others but did not succeed in alighting among the smaller branches of the tree and finally settled on a large limb near the ground. I saw him every day after that (from August 10 to August 17), and never did his companions desert him; some one of them being always near and warning him of approaching danger; whereupon he would fly in the direction indicated by the sound of their voices. They guided him regularly to a spring near by where I saw him bathe daily, always, however, with some of his companions close by. They not only watched and guided him but they fed him. I had noticed some days previously some Jays carrying food, and thought it strange at that season, as there were no young then to feed, but found afterwards, to my surprise and pleasure, that the poor old blind bird was being fed by those whom he could no longer see.

About a week after first noticing this bird I was compelled on account of sickness in the family to relinquish my observations. There is no doubt whatever that the bird was an old one. The young of the year are easily recognized, not alone by their plumage but by their peculiar teasing, whining notes, unmistakable to anyone familiar with the species.—FRITHOF KUMLIEN, *Milwaukee, Wis.*

[My attention has just been called by my friend Prof. G. W. Peckham to some notes in Darwin's 'Descent of Man,' 1875, pp. 102, 103. The existence of these observations was entirely unknown to my brother (the writer of the above, now recently deceased) or to me at the time his notes were made. I quote from Darwin, p. 102: "Capt. Stansbury found on a salt lake in Utah an old and completely blind pelican, which was very fat, and must have been well fed for a long time by his companions."* Also foot-note on same page: "Capt. Stansbury also gives an interesting account of the manner in which a very young pelican, carried away by a strong stream, was guided and encouraged in its attempts to reach the shore by half a dozen birds." Darwin adds: "Mr. Blyth, as he informs me, saw Indian crows feeding two or three of their companions which were blind."—LUDWIG KUMLIEN, *Milwaukee, Wis.*]

Notes on the Nomenclature of the Muscles of Volation in Birds' Wings.—Mr. Allen's interesting paper† calls up some points regarding the names of the 18 muscles of the antebrachium and manus of the bird. It may be safely assumed that these represent the usual or normal musculation of the parts, though I should be far from presuming that no additional ones, or no different specializations of these, occur in the class Aves. They have been named from time to time, by different persons, upon no system whatever, like most other anatomical structures. It may not be easy to refer the highly specialized musculation of the wing in detail to any system based upon the state of the parts in *Homo sapiens*, but I am able to indicate some of the homologies concerned with the muscles of the human forearm and hand. These I will note, according to the system of neuromyology of Coues and Shute.‡ I take them up in the order in which they are presented by Mr. Allen.

1. 'Flexor carpi ulnaris.' A muscle which has "its origin at the internal condyle of the humerus, and its insertion on the ulna at the wrist" is

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* See H. Stansbury, 'Exploration and Survey of the Valley of the Great Salt Lake of Utah, &c.' Phila., 1852, p. 193.—ED.

† See this number of The Auk, p. 418.

‡ N. Y. Medical Record, XXXII, 1887, pp 93-98, 122-126.

certainly not the one so named in human anatomy, which passes from the entocondyle to the carpal sesamoid (pisiform) and so on to the fifth metacarpal. But I think there has been a slip here, the muscle in question really going to the manus for insertion. If so, it is correctly named and identified as the *flexor* (*meta-*)*carpi ulnaris* (see 'Key,' fig. 89, no. 36), or simply *flexor ulnaris* of C. and S.

2. 'Musculus ulni-metacarpalis ventralis.'

3. 'Musculus ulni-metacarpalis dorsalis.'

These two muscles I cannot at present writing bring into satisfactory positions in my system. They both appear to belong to the *flexor* set; but as there is neither flexion nor extension in a bird's wrist-joint (motions of adduction and abduction being substituted), one cannot proceed too carefully in identifying the muscles by their action. I see nothing ulno-metacarpal in man to which to refer these muscles. They may turn out to belong to two different groups, despite their concurrent action, and I do not venture to rename them at present.

4. 'Extensor metacarpi radialis.' This appears to correspond to *both* the radial wrist-extensors of anthropotomy, the 'longior' and 'brevior,' and the supinator longus may also be in question here. It is the muscle called (in the 'Key,' fig. 89, no. 32), after Carus, *extensor metacarpi longus.*

5. 'Extensor metacarpi ulnaris.' No doubt the muscle so called in man, and that called *extensor metacarpi brevis* in the Carus figure, 'Key,' No. 33.

6, 7. 'Flexor digitorum sublimis' and 'profundus.' These correspond to the muscles of the same name in man, also called *flexor perforatus* and *perforans* respectively.

8. 'Extensor digitorum communis.' This is said, by a slip, to originate on the 'head' of the humerus, *condyle* being obviously meant. It is the muscle of the same name in man. It appears to be wrongly named in the Key, "34*a* flexor digitorum sublimis," after Carus.

9. 'Extensor pollicis longus.' This may or may not correspond to one, or to two, or to all three of the thumb-extensors of man. That depends, first, upon whether the so-called thumb of a bird's hand be the first or the second digit, and next, upon how many of the human muscles are represented in or by the single one of the bird. This thumb muscle I do not recognize in the figure in the 'Key.'

10. 'Extensor indicis longus.' The final determination of this muscle depends upon the same considerations that affect the recognition of No. 9. In the 'Key' figure, it appears to be that one called "34*b* flexor* digitorum profundus."

11. 'Musculus interosseus dorsalis.' This is one of the muscles called *dorsossei* by C. and S. As it appears to be the only metacarpal *dorsosseus*,

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*As long ago as 1871 I had an idea that the 'flexors' and 'extensors' of the forearm required to be revised in name to bring them into correspondence with their apparent representatives in the leg, and I used frequently to exploit the notion. This accounts for the use of 'flexor' in the cases of numbers 8 and 10.

it may be conveniently and appropriately called by this shorter name, without prejudice to the question, which of the four human dorsossei it represents—apparently the *tertius* or *quartus*.

12. 'Abductor indicis.' A dorsosseus apparently *secundus* or *tertius*.

13, 14. 'Flexor' and 'adductor pollicis. Two small thumb muscles situated upon the back of the manus, of uncertain systematic position. One of them may be really a dorsosseus; but that depends, as before, upon to which digit of the pentadactyl hand the thumb of a bird's tridactyl hand corresponds. One of these muscles is displayed in my Carus figure, '34*c* flexor brevis pollicis.'

15. 'Musculus interosseus palmaris.' This muscle, which has been specially drawn upon in the controversy elsewhere alluded to,* is situate on the 'internal' (that is, the palmar) aspect of the manus; it is therefore one of the three *palmossei* of C. & S., but which one, remains to be decided.

16, 17. 'Extensor' and 'adductor pollicis brevis.' Two 'pollical' muscles, to which the same remarks apply as to Nos. 13 and 14. It would seem that a bird's thumb, aside from its 'long' muscle which comes from the forearm, is exclusively actuated by four 'short' muscles, which flex, extend, abduct, and adduct it. Such regular musculation should not be difficult to homologize, but we must first settle the status of the digit itself. If a bird's hand be no exception to the probably invariable rule in mammals, that, when digits are reduced in number from five, the reduction is from *each side* alternately, so that digits I and V are the missing ones in a tridigitate member, then obviously, the three digits of a bird are II, III and IV corresponding to our index, middle and ring fingers. But if, in a bird, two digits have gone from the ulnar side, then the bird's three digits are I, II, III, corresponding to our thumb, index and middle fingers. I think that very likely a careful dissection of the two main *nervous* trunks of the forearm would throw a light upon the question which perhaps the examination of the embryonic carpus and metacarpus has not hitherto afforded.

18. 'Flexor digiti tertii.' Apparently one of the hypothenar subgroup of C. and S., but possibly a palmosseus: its identification depends upon that of the digit in question.—ELLIOTT COUES, *Washington, D. C.*

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*This number of The Auk, p. 418.

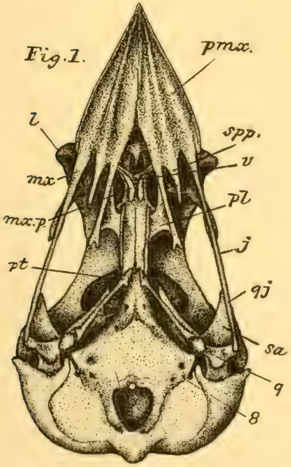
CORRESPONDENCE.

[*Correspondents are requested to write briefly and to the point. No attention will be paid to anonymous communications.*]

The Osteology of Habia melanocephala, with Comparative Notes upon the Skeletons of certain other Conirostral Birds and of Tanagers.

To the Editors of the Auk:—

Dear Sirs:—To none others better than yourselves is the fact well known, that whosoever has undertaken to compare the skulls of several of the more nearly allied genera of our fringilline birds, with the view of discovering distinctive characters among them, how next to hopeless that person has found such a task to be. Among a large series of skeletons before me I find such species represented as *Zonotrichia coronata*, *Chondestes grammacus*, *Habia melanocephala*, *Pipilo m. megalonyx*, *Pipilo chlorurus*, *Piranga ludoviciana*, *Calamospiza melanocorys*, *Icteria v. longicauda*, *Calcarius lapponicus*, besides a host of other Passeres, including the majority of the Crows, Jays, Orioles and their allies, Sparrows, Finches, and others, and it is truly wonderful to note the manner in which the cranial characters, indeed the skull as a whole, in these numerous genera, morphologically shades from one series of the more intimately related forms into the group next most nearly allied, and so on, along different lines, diverging as they do, from any well-defined genus we may elect as our primary one for initial comparison. True as this is, however. I find it none the less true that if we critically compare the skeleton of some Finch, for instance, at one extremity of such a series, with the skeleton of another conirostral species chosen from the other, important differential characters may not infrequently be detected, which characters are constant for the species, and of great value to the taxonomist of this, in many cases, puzzling group of birds. It is my object in the present connection to point out some of the more available characters, such as I refer to, and which I have met with in my osteological studies of this extensive group. In *Habia melanocephala* the skull as a whole bears a very striking, though superficial, resemblance to that part of the skeleton in certain Parrots, and when compared with the skull in such a form as *Pipilo m. megalonyx*, for example (Figs. 1 and 2), presents us with some excellent differential characters. Chief among them we find in the Grosbeak to which I have invited attention that, in addition to its far more massive osseous superior mandible, it possesses a complete bony *septum nasi;* the infero-external angle of a *pars plana* meets the jugal bar beneath it, and is produced backwards to no inconsiderable extent; the tympanic bullæ are inconspicuous; the frontal region between the margins of the orbits on the superior aspect of the skull is unusually broad; the antero-external angles of the vomer are commonly produced, and fuse with the maxillary and premaxillary on either side (there may be exceptions to this, but it never happens in *Pipilo*); the postero-external angle of either palatine is distinctly bifurcated; the palatine, on either side, develops a *secondary palatine* process (*sp.p.*, Fig. 1), extending backwards from a point to the outer side of where the anterior palatine limb fuses with the premaxillary;* and finally, the interorbital septum is performed entirely in bone, though the foramina for the exit of the first pair from the cranium merge, and the vacuity is of some considerable size.



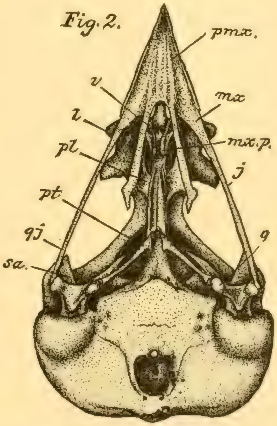


Fig. 1. Basal view of the skull of *Habia melanocephala*, adult ♂, × 2, and mandible removed.

Fig. 2. Basal view of the skull of *Piplo m. megalonyx*, adult ♂, × 2, and mandible removed. *pmx*, premaxillary; *l*, lacrymal; *mx*, maxillary; *mx. p*, maxillo-palatine; *pt*, pterygoid; *spp*, secondary palatine process; *v*, vomer; *pl*, palatine; *j*, jugal; *sa*, squamosal process; *q*, quadrate; *8*, foramen for glossopharangeal and vagus nerves; *qj*, quadrato-jugal.

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*These processes are well shown in Figure 1, and as I have never met with a former description, I have designated them by the above-given name. Not having examined the young of *H. melanocephala*, it is just possible that these interesting projections may be developed on the part of the premaxillary, but the adult skull does not seem to so indicate. The name I have bestowed upon them will answer very well in either event. They are absent in such a form as *Coccothraustes vulgaris* (See Huxley, P.Z.S., 1867, p. 452, fig. 33), and very likely in our *C. vespertina*, though I have not examined the skeleton of that species.

Now in the skull of the *Pipilo*, which I have chosen for comparison, each and all of these characters are just the reverse. There we find not even a vestige of an osseous nasal septum; nor does the *pars plana* so much as reach the jugal bar; nor are the postero-external angles of the palatines bifurcated, but are on the other hand distinctly truncated from without inwards and backwards; while in addition we find in this species very conspicuous tympanic bullæ, a large vacuity in the interorbital septum, a narrow frontal region, and the secondary palatine processes absent (Fig. 2). Both of these birds possess an elliptical vacuity in the ramus of the mandible, on either side, but in *Habia* this bone is far stronger with much deeper sides than we find it in *Pipilo*, and withal is not a little different in shape. In both of these Finches, too, the squamosal processes are very large (*sa*); while I may add that thus far it is only in *Habia melanocephala*, of all our Conirostres that I have detected the secondary palatine processes. The characters of the skull in *Pipilo m. megalonyx* are almost exactly repeated in the skulls of *Pipilo chlorurus* and *Zonotrichia coronata*, though the skull in the first-named species is considerably larger, and has the tympanic bullæ markedly more prominent; while in the case of the two species last named, both in point of size and in all other details, it lies next to an impossibility to distinguish them. All North American Fringillidæ have an extraordinarily minute occipital condyle, as compared with the size of the skull (see figs. 1 and 2).

By the easiest sort of intergradation the skull of *Zonotrichia* shades into the skull of *Chondestes*, and an attempt to define the differences between them would simply result in an enumeration of insignificant details. As we pass to such a skull, however, as we find in *Calcarius lapponicus*, a specimen of which species I collected in Wyoming in 1880, and now have its skeleton before me, a few of the modifications in characters so faintly forecast in *Zonotrichia*, are here completed and stereotyped. The delicate, mesial ends of the maxillo-palatines are now enlarged and paddle-shaped; the antero-external angles of the vomer are curled upwards and inwards; the palatines are well separated from each other the *entire* length of the rostrum of the sphenoid, and their postero-external angles each terminate in a needle-like point; and lastly, the tympanic bullæ cease to be a striking feature of the skull. And for conirostral birds, the gap indicated by the characters of this part of the skeleton, between such a type as *Calcarius* and *Habia*, is now of no inconsiderable extent; I was almost about to say of family distinction.

To see the typified fringilline skull, however, we can turn to no better example than exists in *Calamospiza melanocorys*,—a true Bunting, if there ever was one. Compact to a fault, and with all the bones stouter and thicker than in any of the foregoing species, the skull of *Calamospiza* is easily distinguished from the skull either of *Pipilo* or of any of the true Sparrows. In it the external nasal aperture upon either side, is circular rather than elliptical, as it is in the Towhees and *Zonotrichia*. Compared with its allies its characters are of excellent generic rank, if we may be permitted to judge from the skull alone; there is nothing especial though in this part of the skeleton in *Calamospiza* that at all reminds one of the skull in *Habia melanocephala*.

Elsewhere I have shown that *Molothrus ater* was by its skeleton a Finch, though the most icterine of all our Fringillidæ, with the exception perhaps of *Dolichonyx*, a form which I have not yet osteologically examined, but judging from what I found in *Molothrus*, I am strongly inclined to believe that it too belongs on the fringilline side of the line. Barring the broad frontal region in the first-named species, its skull approaches in its general *facies* the skull in the Towhees and their more immediate allies, and from them it shades beautifully into the Icteridæ.

Passing for a moment to the skull in another family, the Tanagridæ, we meet with the extreme modification of the conirostral type in another direction, so profound a change, indeed, that I am not familiar with the skull of any true fringilline, that the skull of such a species, for instance, as *Piranga ludoviciana* could be confused with, or would in its entirety resemble. In the Tanager to which I refer the nostrils are large and elliptical; there is a total absence of an osseous nasal septum; as compared with an average Finch the skull is elongated, and the brain-case relatively smaller; its palatines are of the most marvelously delicate construction, and their postero-external angles drawn out into long hair-like spiculæ; the pterygoids are markedly slender; and finally, the presence of *secondary palatine processes* plainly points to its affinity with such a Grosbeak as *Habia melanocephala* among the Fringillidæ. So far as the skull goes, the Tanagers are remotely linked with the Mniotiltidæ through *Icteria*, and in *Icteria virens longicauda* the skull presents some few striking differences from that part of the skeleton in *Piranga ludoviciana*, for not only does it seem to exceed it in frailty and delicacy of construction with respect to the bones composing it, but in the skull of the Chat to which I refer we find that the secondary palatine processes are absent; the postero-external angles of the palatines are produced as blunt apophyses, and the anterior projecting limbs of these bones are conspicuously slender and widely separated; the ramal vacuity of the mandible is large, elongated, and elliptical in outline, while the sides of this bone are shallow, and its entire make impresses us with its weakness. Omitting, however, the mandible, the palatines, the acuteness of the superior osseous mandible, we should have remaining in the rest of the skull of *Icteria* a structure that without the slightest violence could be appropriated by any true Pirangine avian type.

Turning again to the skeleton of *Habia melanocephala*, we find that it possesses nineteen vertebræ between the cranium and the pelvis, all freely movable upon each other; of these the ultimate *five* connect with the sternum through costal ribs, while just anterior to them are two vertebræ which support free ribs (the anterior pair being very minute), and finally, there is a pair of sacral ribs, the hæmapophyses to which fail to connect with the sternum. This arrangement of the ribs and vertebræ also obtains in *Pipilo*, *Zonotrichia*, *Icteria*, and other forms, and is undoubtedly the typical plan for the vast majority of average Passeres. A difference is met with though in the tail vertebræ, for in the specimens at my hand *Habia* possesses *seven* free caudals and the pygostyle, while *Pipilo* has but *six* and the terminal piece. In *Piranga*, too, we find but six caudal vertebræ, and the pygostyle, while this also seems to be the number in *Icteria*, and in a former memoir I recorded the same in *Molothrus ater*.

With barely an apology of a structural difference between them upon which to base a substantial distinction, the *pelvis* in *Habia* sees almost its exact counterpart in the corresponding bone in the skeleton of *Pipilo m. megalonyx*. Both are typically passerine, and so well known is the passerine pelvis in such genera as these, that to enter upon its description is by no means necessary. *Pipilo chlorurus* has a pelvis which differs from the pelvis in *P. m. megalonyx*, as well as from the pelvis in *Zonotrichia coronata*, in that in it is the fourth sacral vertebra, counting from the last forward, that extends its diapophysial braces opposite the acetabula, instead of the third as in the excepted species, and a difference of arrangement also exists in that an additional vertebra, anteriorly, extends its lateral processes to meet the ilium upon either side, there being three each in *P. m. megalonyx* and *Zonotrichia*, and four in *P. chlorurus*. I should like to examine more material before pronouncing upon the significance of this departure, and more especially skeletons of *Embernagra rufivirgata*. *Piranga ludoviciana* and *Icteria* have pelves almost identically alike, it being in each case the fifth from the last sacral vertebra that throws out the long strut-like apophysial arms to act as braces opposite the acetabula. *Calamospiza* possesses the same arrangement of the vertebræ in its pelvis, but here the bone is apparently not as wide for its length as it is in *Habia*, though no satisfactory differences exist between several of these pelves, upon which to base strong family, or even generic lines.

Few differences again are to be found in the *sternum* of the species we have under consideration; the common pattern of the bone as seen among the smaller average passerine birds of this country is well shown in my figures of it in *Otocoris* (Osteology of *E. alpestris*, figs. 22, 24, 27, and 38); in *Habia* the anterior carinal angle is pointed and the keel itself is but of moderate depth, while among the *Pipilos*, and in *Zonotrichia*, the anterior carinal angle is rounded, and the keel much shallower, markedly so in the ground-loving species of the first-named genus. I am strongly inclined, however, to attribute this last character to physiological adaptation rather than to an evidence of affinity. These Towhees spend much of their time hopping about beneath the shrubbery of their places of resort, and by no means use their wings in flight so often as other fringilline species, and consequently develop less their pectoral muscles, which are attached, in part, as we know, to the sternal carina. True Tanagers, as I have elsewhere pointed out, have an osseous bridge extending across the top of the manubrium to the anterior margin of the body of the sternum, and if it be constant, it is an excellent character for this family. It is absent in such a genus as *Icteria*, and in all the Fringillidæ now at my hand.

My plate o the osteology of *Otocoris*, cited above also presents good figures of the bones of the *shoulder girdle*, and when we come to compare them among these smaller passerine types it is truly wonderful how well they agree with each other. We have examined them in many species representing a host of different genera, and yet who has been enabled to base a single, *constant*, differential character upon the elements of this arch? Slenderer here, a little shorter there, a somewhat longer and more quadrilateral hypocleidium in this form than in that, still in all essential particulars, coracoid, scapular, and *os furcula* in *Piranga* are the same as we find them in *Habia*, or in *Pipilo*, or in *Molothrus*, *Progne*, *Lanius* (I have elsewhere figured it for this genus), *Merula*, in short a perfect phalanx of other forms among our smaller Passeres.

What I have just said in reference to the shoulder girdle applies with equal force and truth to the skeleton of the *pectoral* and *pelvic limbs* of these birds, which parts have been likewise figured in my memoirs upon *Otocoris* and *Lanius*. One may go carefully over, with lens in hand, for hours, studying the limb bones of these particular genera of passerine birds, and yet signally fail to select a reliable set of characters in any genus that can be depended upon to distinguish it from another. Differences, of course, yes, constant differences, *do* exist, but they are not of the kind which can be powerfully brought into play by the taxonomist, who in searching for differential skeletal characters in these several groups must rely almost entirely upon what he finds in the skull, the vertebral column, and occasionally in the pelvis and sternum. Still, minor differences, which are sometimes presented, may, by the careful classifier, be mentally added to the more salient distinguishing features, and thus be allowed their weight in his final decisions, where they might not be of sufficient importance to warrant a published description or special record. This has been the writer's habit when dealing with such characters. To the practised eye, and an unbiased and mature judgment, the general *facies* presented by the skeleton of the wing or leg of a small passerine bird will sometimes assist, and properly so, in one's forming a final opinion, when these facts are being compared with similar parts in a different species, and where affinities are being searched after.

In conclusion, I would remark that having carefully gone over and thoroughly studied and weighed the characters of the species now under consideration, and many others not enumerated above, I am prepared to say that, in so far as the skeletons seem to indicate, the following deductions can be drawn. First, *Habia melanocephala* possesses characters in its skeleton not shared by any other fringilline bird known to me, outside the Grosbeaks, which characters are of family rather than generic rank. Essentially conirostral, and a seed-eater with a big beak, but for all that with an *ossified nasal septum*, with *secondary palatine processes*, and a *vomer generally fused with the surrounding bones, anteriorly*,—all of which characters are disreputably unfinch-like, and entitle their owner fully as much to family distinction as any set of skeletal characters we might array chosen from *Sturnus* does that form; and how about *Molothrus* and *Dolichonyx?*

As for *Pipilo chlorurus*, its skeleton is quite the counterpart of the skeleton in *Zonotrichia coronata*, and is readily distinguished from the skeleton of *Pipilo m. megalonyx*, which is by no means an easy task in the case of the first-mentioned species. I believe, from my studies of the anatomy of this form, that it has more Zonotrichine stock in its economy than it has Towhee kinship to boast of, and it sees its nearest affinity in the family among the 'Crown Sparrows.'

Osteologically, *Calcarius*, *Spinus*, and *Acanthis* are more or less closely affined genera, nor does the genus *Plectrophenax* stand between them as at present represented in our Check-List. *Calamospiza*, as I have already remarked, is a true 'Bunting.' but not especially related to the Grosbeaks by any skeletal affinity, and it characterizes a strong genus with well-defined osteological features. Judging from such a form as *Piranga ludoviciana*, I would say that osteologically the Tanagers form a good family, and through certain Grosbeaks are linked with the Fringillidæ, more, though only a little more, remotely through *Icteria* with the 'Wood-Warblers.'

These groups and their kin will bear far more extended anatomical study, which some day I hope to bestow upon them. In closing, it gives me pleasure to thank Mr. C. A. Allen, of Nicasio, California, for his kindness in collecting and sending me the specimen of *Zonotrichia coronata;* it was received in April, 1881, seven years ago.

Very respectfully yours,

R. W. Shufeldt.

Fort Wingate, New Mexico, July 14, 1888.

How far West has Anas obscura been found?

To the Editors of The Auk:—

Sirs:—In my Revised Catalogue of the Birds of Kansas I said "*Anas obscura* Gml. Black Duck. Entered in first catalogue as 'migratory; rare'; but since, on comparing the specimens captured in the State, that I have seen, with Eastern ones, they prove to be the 'Florida Duck.' Other writers claim that the birds have been taken in the State, also in Texas, and west to Utah, and I am inclined to think that further investigation will prove it to be the case. With this explanation I let the bird stand as first entered."

I now desire to say that further examination tends to convince me that the birds do not come as far west as this, and leads me to think it probable that all specimens taken west of the Mississippi River, will prove upon comparison to be the Florida Duck. A set of eight eggs collected near Corpus Christi, Texas, May 27, 1882, and reported to me as of this species, are in dimensions altogether too small, viz.,—2.08 × 1.62, 2.12 × 1.62, 2.10 × 1.58, 2.12 × 1.60, 2.12 × 1.59, 2.08 × 1.62, 2.10 × 1.60, 2.08 × 1.59 inches. In color they are cream or pale buff white.

Any information that will aid in determining their western limits will be gratefully received.

N. S. Goss.

Topeka, Kansas.

NOTES AND NEWS.

Charles Wickliffe Beckham was born near Bardstown, Kentucky, August 1, 1856, and died there at his home June 8, 1888. His father was a lawyer and member of the Legislature of Kentucky at the time of his decease, some eight or ten years ago. His mother, who survives him, was a daughter of the late Governor Charles C. Wickliffe, of Kentucky. Mr. Beckham was educated at a private school near Bardstown, and when seventeen years old was for one or two years a student at the University of Virginia. After that he was attached to the Geological Survey of Kentucky under Professor Shaler, for about two years. He then followed Professor Shaler to Harvard University where he spent a year in scientific studies. He was then appointed, by the Hon. J. Proctor Knott, of Kentucky, clerk of the Judiciary Committee of the House of Representatives, at Washington, where he remained for four years. Afterwards he went to Pueblo, Colorado, where for about a year he engaged in mercantile pursuits; thence returned to Washington and became connected with the National Museum. While clerk to the Judiciary Committee of the House of Representatives he studied law, attending for a portion of the term, the Columbia Law School in Washington. About two years before his death he was induced to turn his attention to the practice of law, as a patent solicitor, and entered the office of Mr. Pollock, where he was engaged with great promise of success when his fatal disease began to develop itself.

Mr. Beckham's talent for mathematical and physical science, united to other qualities, formed a rare combination from which his friends argued that he would win success. But Providence decreed otherwise. It was in the effort to throw off disease that he spent a winter in Texas, employing his time making a collection of birds, a fine series of which he presented to the National Museum. Returning from Texas for a few months, he resumed his labors at Washington, but again attacked by illness he went to Louisiana and spent the winter with his uncle, Governor R. C. Wickliffe, near St. Francisville. Growing worse, he returned, with his mother, to Bardstown, where he died, after extreme suffering. "All that friends and relatives and medical skill could do were of no avail. He died without an enemy, and was followed to the grave by the tears and tender regrets of all who had ever known him." During his connection with the Department of Birds of the National Museum, Mr. Beckham proved an intelligent and able assistant, while his gentle, genial, and unassuming manners, and gentlemanly deportment won for him the genuine regard of his associates. Owing to his ill health, he was not able to devote much of his leisure time to the labor of original research in his favorite study, but he managed to write several papers, each of which is a valuable contribution to the subject to which it relates, being characterized by an unusual degree of painstaking care and unbiased judgment; and had he been able to write more would undoubtedly have won for himself a high rank among ornithologists.

A nearly complete list of Mr. Beckham's ornithological papers is subjoined herewith:

Short Notes on the Birds of Bayou Sara, Louisiana. *Bull. Nutt. Orn. Club*, Vol. VII, 1882, pp. 159–165.

The Black-throated Bunting in Florida. *Bull. Nutt. Orn. Club*, Vol. VII, 1882, p. 250.

A List of the Birds of Bardstown, Nelson County, Kentucky. *Journ. Cincinnati Soc. Nat. Hist.*, Vol. VI, pp. 136–147. July, 1883.

List of the Birds of Nelson County [Kentucky]. *Kentucky Geological Survey*. Sept., 1885.

Notes on Some of the Birds of Pueblo, Colorado. *The Auk*. Vol. II, 1885, pp. 139–144.

A White-winged Junco in Maryland. *The Auk*, Vol. II, 1885, p. 306.

Remarks on the Plumage of *Regulus calendula*. *Proc. U. S. Nat. Mus.*, Vol. VIII, No. 40, Dec. 7, 1885, pp. 625–628.

Changes in the Plumage of *Geothlypis trichas*. *The Auk*, Vol. III, 1886, pp. 279–281.

First Plumage of the Summer Tanager. *The Auk*, Vol. III. 1886, p. 487. [Here described for the first time.]

The Red-breasted Nuthatch in Kentucky in Summer. *The Auk*, Vol. III, 1886, p. 489.

Scarcity of Adult Birds in Autumn. *The Auk*, Vol. IV, 1887, pp. 79–80.

Additional Notes on the Birds of Pueblo County, Colorado. *The Auk*, Vol. IV, 1887, pp. 120–125. [The list published in a previous number (Vol. II, pp. 139–144) increased from 91 to 112, and "additional notes" given on 29 species mentioned in the first list.]

Additions to the Avifauna of Bayou Sara, La. *The Auk*, Vol. IV, 1887, pp. 299–306. [Very interesting remarks on the birds of that locality, including 27 additions to an earlier list (*Bull. Nutt. Orn. Club*, Vol. VII, 1882, pp. 159–165.]

Occurrence of the Florida Blue Jay (*Cyanocitta cristata florincola*) in Southwestern Texas. *The Auk*, Vol. V, 1888, p. 112.

A Philadelphia Vireo and a Cobweb. *The Auk*, Vol. V, 1888, p. 115. [The Vireo entangled in and held fast by the cobweb.]—R. R.

Philip Henry Gosse, F. R. S., well known as an English naturalist of note, died in London, August 27, at the age of seventy-eight years. He spent much of his early life in America, visiting Newfoundland when seventeen years of age, and spending many subsequent years here, in Lower Canada, and the United States, and later in Jamaica. Besides publishing many standard works and papers on British marine zoölogy, he was the author of several works of travel relating to the natural history of the countries he visited, including his 'Canadian Naturalist' (1840), 'Letters from Alabama on Natural History' (1859), and 'A Naturalist's Sojourn in Jamaica' (1851). He was also the author of 'The Birds of Jamaica' (1847), and 'Illustrations of the Birds of Jamaica' (1849), works giving him an established position as an ornithologist, besides various minor papers on ornithological subjects. He was the father of Edmund W. Gosse, the critic and poet.

THE SIXTH Congress of the American Ornithologists' Union will be held in Washington, D.C., beginning Nov. 13. A circular of information will soon be sent to members by the Secretary, giving information as to where the sessions will be held, etc. The meeting promises to be one of unusual importance and interest.

THE BRITISH MUSEUM has recently made an important addition to its collection of North American birds through its purchase of Mr. H. W. Henshaw's fine series, numbering about 12,000 specimens. The Henshaw collection, having been carefully revised by Mr. Ridgway, thus carrying his identifications, transfers to the British Museum an authoritatively labelled collection of North American birds, which will be of great assistance to our English friends in determining just what American ornithologists mean by the names they give to American birds.

THE REPORT of the U. S. Commissioner of Agriculture for the year 1887, recently issued, contains an interesting report (pp. 399-456) on the work accomplished by the Division of Economic Ornithology and Mammalogy. Besides a general statement of the progress of the work by Dr. C. Hart Merriam, Chief of the Division, the report contains the following special papers: (1) 'Food of Hawks and Owls,' by Dr. A. K. Fisher, Assistant Ornithologist; (2) 'Experiments in Poisoning,' by the same author; (3) 'Some of the Results of a Trip through Minnesota and Dakota,' by Vernon Bailey, Special Field Agent; (4) 'Notes on the Depredations of Blackbirds and Gophers in Iowa and Southern Minnesota,' by Dr. Fisher. Two 'Bulletins' are in press, one on the English Sparrow, and one on Bird Migration in the Mississippi Valley, the latter by Professor W. W. Cooke. The English Sparrow report is based on replies received "from more than 3,000 persons," in answer to circulars and schedules sent out by the Department asking for information. The preparation of this large amount of material for publication has been assigned to Professor W. B. Barrows, Assistant Ornithologist.

DR. M. A. MENZBIER has issued a prospectus of a work on the 'Ornithologie du Turkestan et des pays adjacents,' to be issued in parts, large quarto in size, with colored plates. The work will form six volumes with eighty to ninety plates, and will be based on the collections and notes made by the late Dr. N. A. Sewertzow, during his eight expeditions, under the auspices of the Russian government, during the years 1857 to 1878. The territory explored extends from Mount Tarbogataë on the east to the Volga on the west, and from Western Siberia on the north to the Hindoo-Koosh on the south. The work will be based on ample material and its publication is expected to extend over five or six years. The specimen pages and plates issued with the prospectus indicate care and thoroughness in the preparation of the work, for which the author is eminently qualified. The cost of the complete work will be about $150.

Foreign ornithologists are responding liberally to the call for funds for the erection of the proposed monument to Audubon, their gifts being often accompanied by expressions of hearty appreciation of the great naturalist and his work. An eminent German ornithologist writes: "Enclosed in this letter I send you . . . as a small contribution for the monument to Audubon, whose memory is so dear and so much venerated by all who have worked in ornithological science." Another says: "By Imperial post I have the honor to send you . . . . as a small contribution for the Audubon Monument in the hope that even so small a sum will be kindly received as a sign of the high esteem for the great American ornithologist, so much admired in Europe and by all brother ornithologists." If Americans feel the same interest and respect for Audubon they are certainly slow in manifesting it in the same substantial way as foreign ornithologists are doing, as shown by the following list of contributions submitted by the Chairman of the A. O. U. Audubon Committee (Mr. Wm. Dutcher, 51 Liberty St., New York City), as covering the period from June 11 to September 14: O. F., Bremen, $4.71; Dr. A. von Pelzeln, $5; Prof. F. Ferrari-Perez, $10.00; B. H. Dutcher, $1.00; W. Dutcher, $3.00. Total, $133.71.—In the July Auk (p. 336) the credit to "Dr. R. Blasius, $8.00," should stand as follows: Dr. W. Blasius, $3.00; Dr. R. Blasius, $5.00.

Besides the continuation of Professor Evermann's paper on the birds of Indiana, and Mr. Scott's article on the birds of Southern Florida, the following papers are in hand awaiting publication in future numbers of 'The Auk': 'Notes on the Habits, Nests, and Eggs of the Subgenus *Passerella*,' by Capt. Charles E. Bendire; 'Notes on the Habits, Nests, and Eggs of *Dendragapus obscurus fuliginosus*', by Capt. Charles E. Bendire; 'On the Summer Birds of Berkshire County, Massachusetts,' by Walter Faxon; 'Oölogical System,' by Josiah Hoopes; 'An Account of the Breeding Habits of *Puffinus auduboni* in the Island of Grenada, West Indies,' by George N. Lawrence; 'Remarks upon Abnormal Coloring of Plumage observed in some species of Birds,' by George N. Lawrence; 'On the Subdivisions of the Family Cypselidæ,' by Frederic A. Lucas; 'Notes on the Birds of White Top Mountain, Virginia,' by William C. Rives, Jr., M. D.; 'Revision of the Clapper Rails,' by George B. Sennett; 'On the Position of the Genus *Chamæa* in the System,' by R. W. Shufeldt; 'The 'Booming' of the Bittern', by Bradford Torrey. Also numerous 'General Notes,' and reviews of ornithological publications.

SUPPLEMENT.

DESCRIPTIONS OF NEW SPECIES AND SUBSPECIES OF BIRDS FROM THE NEOTROPICAL REGION.

BY HANS VON BERLEPSCH.

1. Campylorhynchus zonatus costaricensis, subsp. nov.

C. zonatus Sharpe, Cat. Birds, VI, p. 195, pt. (descr. ♂ ex Parita, Costa Rica).

Diagn. — C. zonato simillimus sed multo minor, pilei plumis purius griseo terminatis, remigibus angustius et purius albo fasciatis, rectricibus mediis distinctius et regulariter transfasciatis necnon abdomine intensius brunneo-cinnamomeo distinguendus.

Typ. in Mus. H. v. B., No. 2964: Costa Rica (O. Nanne coll.).

	Long. tot.	al.	caud.	rostr. culm.	tars.	
C. zonatus costaricensis	168	70	69½	19½	22½	mm,
C. zonatus, Guatemala (Mus. H. B.), in worn plumage	175	84½	79½	24	26	"
C. zonatus, Honduras (Mus. H. B.), ex Whitely	200	85½	89½	22¾	26½	"
C. zonatus, Mexico (Mus. Kiel)	219	93½	93	26	27½	"

The Costa Rica form of *C. zonatus* may be easily distinguished from the typical bird of Mexico by its much inferior size. In fact it is a dwarf edition of true *zonatus*. On looking over Mr. Sharpe's description of the *C. zonatus* in Cat. Birds Brit. Mus. VI, p. 195, I find that he describes the Costa Rican form of this species. The dimensions noted by him and taken from an adult male collected at Parita, Costa Rica, 5th April, 1867, by J. Carmiol, are just the same as those of my Costa Rican bird.

Regarding coloration, there seems to be very little difference between the new form and true *zonatus*, but it appears that the former has the feathers of the top of the head tipped with a purer and clearer ash (not so brownish as in *zonatus*). The light bands on the quills are narrower and whiter. The light and black bands on the middle tail-feathers are also more regular on the inner web, where they are quite obsolete in true *zonatus*. The black spots on throat and breast may be larger and more irregular. The vent and under tail-coverts are of a much deeper and browner cinnamon rufous.

2. **Certhia mexicana albescens**, subsp. nov.

Diagn.—C. mexicanæ similis sed differt capite supra et dorso striis latioribus et purius albis, nec rufescenti-albis, signatis, corpore subtus purius albo, nec fulvescenti-albo, uropygio intensius castaneo, necnon rostro longiore.

Typ. in Mus. H. v. B., No. 8513, ♂ ad. Ciudad, Durango, N. W. Mexico, 16th October (Alph. Forrer coll.).

Long. tot. 123, al. 65, caud. 62½, culm. 16¼, tars. 14 mm.

The bird just described differs in several important characters from two specimens collected on the tableland or eastern part of Mexico in Mus. H. v. B., and I have little doubt belongs to a new subspecies, which is perhaps more strongly marked than other races of *Certhiæ*. At the first sight the Durango bird differs by its much lighter and less rufescent coloration. The spots on the head above and on the back are much broader and more clearly defined. They appear to be nearly white, while they are light rufescent in true *mexicana*. In the same way the markings on the sides of the head and on the wings are much whiter and less rusty. The under parts, which in true *mexicana* are so much suffused and mixed with fulvous, in the new form appear nearly pure white or grayish white. The rump is of a darker chestnut. The outer margins of the outer webs of the tail-feathers are more grayish or less rufescent. The bill is much longer, measuring on the culmen 16¼ (instead of 14 to 15) mm.

3. **Basileuterus godmani**, sp. nov.

Diagn.—B. culicivoro affinis, sed major, alis caudaque multo longioribus, pilei plumis rufo-cinnamome is olivaceo terminatis (nec sulphureo-flavis tantummodo rufescente variegatis et griseo-olivaceo terminatis) dorso alis caudaque extus magis olivaceo lavatis, sane diversus.

Habitat: Veragua (specimina duo in Mus. H. v. B. (ex Staudinger & Whitely) asservantus et Costa Rica (fide Baird et Salv. & Godm.).

	Long. tot.	al.	caud.	culm.	tars.
B. culicivorus godmani	120	65½, 64½	58½, 56½	10½	18½ mm.
B. culicivorus, three specimens from Guatemala in Mus. H. v. B.	100-105	53½ to 54½	47 to 48	9½ to 10½	17 to 18 "

Messrs. Salvin & Godman have already remarked the difference in colors between specimens from Veragua and Costa Rica as compared with the northern birds, but they say nothing regarding the great difference in size which I believe is a very important character. They say: "Avis ex Costa Rica et Panama pileo medio paulo magis aurantiaco et dorso olivascentiore forsan distinguenda" (cf. Biolog. Centr. Am. Aves p. 171). In fact, the larger size, combined with the marked difference in colors, induces me to describe the southern bird as a new species, which I have the honor to call after my distinguished friend Mr. F. Du Cane Godman of London.

The differences in colors were first pointed out by the late Prof. Baird, but he regarded them as perhaps seasonal.

4. **Eucometis spodocephala pallida**, subsp. nov.

5. **Eucometis spodocephala stictothorax**, subsp. nov.

6. **Eucometis cristata affinis**, subs. nov.

A careful study of specimens of *Eucometis* from different localities has convinced me that there are several geographical races of these birds, hitherto overlooked, which nevertheless are quite distinguishable as subspecies. Prof. Ridgway having been kind enough to send me for examination four specimens of true *E. spodocephala* Bonap. from Nicaragua, belonging to U. S. Nat. Mus. I am now able to point out more properly the differences of the two new races, which may be described as follows:

Eucometis spodocephala pallida Berl.—E. spodocephalae ex Nicaragua affinis sed minor, rostro alis caudaque multo brevioribus. Pectore et abdomine reliquo clare et pure flavis, pectore vix saturatiore minime aurantio vel ochraceo tincto. Dorso alis caudaque extus clarius et purius olivaceo-viridibus. Gula juguloque clarius albo-griseis.

Habitat: Yucatan (coll. G. F. Gaumer). Type in Mus. H. v. B.

Eucometis spodocephala stictothorax Berl.—E. ab *E. spodocephala* ex Nicaragua dorso et alis caudaque extus olivaceo-viridibus (nec flavo- vel brunneo-olivaceis), colore gulae cinereo obscuriore magis ad jugulum vel pectus producto, pectore et lateribus sordidius aurantiis, *pectore distincte olivaceo flammulato*, subalaribus cum margine alarum sordidius flavescenti-olivaceis, etiam rostro paullo longiore distinguenda.

Habitat: Veragua (e Staudinger). Type in Mus. H. v. B.

The type of *E. spodocephala* Bp. having come from Nicaragua through Delattre, I wanted to see specimens from that very locality and therefore am much obliged to Prof. Ridgway, who sent me for examination all the four skins collected by Nutting at Sucuya, Nicaragua, for U. S. National Museum. All these skins agree very well among themselves and are characterized by the deep orange or ochraceous shade of the yellow on the upper breast and sides of the body (somewhat as in *E. cristata* of Bogota), while the middle of the abdomen is of a purer and clearer yellow. The olive-green of the upper parts presents a somewhat yellowish or brownish shade. The cinereous color of the head has a slight greenish admixture, and the gray of the throat is dark but with a slight yellowish suffusion.

E. spodocephala pallida of Yucatan differs from the birds just described very decidedly in its much smaller size, shorter wings, tail, and bill, the latter being pale at the tip of the under mandible. The colors of the body are also very much lighter. The yellow of the under parts is very clear and quite uniform, perhaps a little darker on the upper breast, but never of an orange or ochraceous shade. The gray of the throat is much paler, more whitish gray, and the olive-green of the upper parts is very much clearer and purer without the yellowish or brownish tint to be seen in true *spodocephala*. The upper part of the head is nearly of the same tint as in true *spodocephala*, but it appears that this color is more restricted on the neck, as well as the gray on the throat below.*

E. spodocephala stictothorax, of which I have examined five specimens collected at Chiriqui, Veragua, is of nearly the same size as true *E. spodocephala*. It nevertheless differs by having the upper part of the breast flammulated with olive-green, of which there is no trace in the Nicaragua specimens. The gray of the throat is much darker, without the yellowish suffusion, and is much more extended to cover the whole jugulum. The upper part of the head is perhaps a little darker, and the remaining upper parts are of a dark olive-green without the yellowish or brownish tint of *E. spodocephala*. The under wing-coverts and the bend of the wing are a rather duller greenish yellow. The bill is evidently stronger and longer.

Prof. Ridgway also sent me a skin of *Eucometis* from Belize, Honduras (coll. Blancaneaux) which appears to be somewhat intermediate between true *spodocephala* of Nicaragua and *E. s.*

stictothorax of Veragua. This bird being moulting is perhaps not in very normal plumage, and it will be necessary to examine a larger series from that locality. The specimen is of nearly the same size as the Nicaraguan examples, but the bill appears to be rather slender or more compressed laterally. The breast and the sides of the body are not so deep orange or ochraceous yellow, and in the same way there is hardly an indication of the olivaceous flammulations to be seen in *E. s. stictothorax.* The upper part of the head is still of a purer and darker cinereous than in the latter bird, while the gray of the throat is lighter and not so much extended over the jugulum. The olive-green of the upper parts is just the same as in the Veraguan race, perhaps a shade lighter.

MEASUREMENTS.

		Long. tot.	al.	caud.	culm.	tars.	
1. *E. spodocephala pallida*, Yucatan (Gaumer) Mus. H. v. B.		167	81	71	14¼	20¾	mm.
2. *E. spodocephala*, ♂ Sucuya, Nicaragua, Jan'y 26, 1883 (C. Nutting)	U.S.Nat.Mus. 90835	150½	89	77½	14½	21	"
3. *E. spodocephala*, ♂ Sucuya, Nicaragua, Feb'y 10, 1883 (C. Nutting)	90832	160	92½	80	14¾	21½	"
4. *E. spodocephala*, ♀ Sucuya, Nicaragua, Feb'y 10, 1883 (C. Nutting)	90833	145	85½	74½	-15¾	21½	"
5. *E. spodocephala*, ♀ Sucuya, Nicaragua, January 10, 1883 (C. Nutting)	90834	154½	85½	75¼	15½	21½	"
6. *E. spodocephala* ? Belize, Honduras(coll. Blancaneaux	90488	174½	87	73½	15¾	21½	"
7. *E. spodocephala stictothorax*, Chiriqui, Veragua, Mus. H. v. B.		162	90	(moulting) 78½	18⅕	23	"
8. *E. spodocephala stictothorax*, Chiriqui, Veragua, Mus. H. v. B.		163	89½	79	17	22½	"
9. *E. spodocephala stictothorax*, Chiriqui, Veragua, Mus. H. v. B.		148	85	73½	17	23½	"
10. *E. spodocephala stictothorax*, Chiriqui, Vergua, Mus. H. v. B.		141½	81½	72½	17	22½	"
11. *E. spodocephala stictothorax*, Chiriqui, Veragua, Mus. H. v. B.		136	83½	73½	16	23	"

Eucometis cristata affinis Berl.—Simillima E. cristatae ex Columbia, sed paullo minor, pectore abdomineque pure aureo-flavis nec aurantio- vel ochraceo-flavis. Gula clariore grisea nec ut in E. cristata obscurius flammulata.

HABITAT: Pto. Cabello, Venezuela (Mus. H. v B.).

Long. tot. 150-175, al. 85½-94, caud. 72½-82½, culm. 15¼-16¾, tars 20½-22 mm.

Of this form I have examined no less than eleven specimens, all of them collected in the neighborhood of Pto. Cabello. Venezuela. They agree pretty well among themselves in coloration and in all characters by which they are different from true *cristata* of Bogota, viz.: the paler and purer yellow of the breast and abdomen and the lighter throat, which is not so distinctly flammulated with darker stripes as in the bird of Colombia. The lores and the region round the eye are not so black as in the latter, and the crest seems to be always shorter. It is also a bird of somewhat inferior size.

I got a specimen from Baranquilla on the coast of Colombia which agrees best with a Bogota skin, viz. true *cristata* of Dubus. Nevertheless it has the small dimensions of the Pto. Cabello bird.

7. **Icterus gularis yucatanensis**, subsp. nov.

DIAGN.—I. gulari Wagl. ex Mexico merid. occ. affinis, sed minor, rostra imprimis breviore. Colore corporis avis adultae aurantiaco intensiore potius rubro-aurantio splendidissimo.

Long. tot. 222-224, al. 107-119, caud. 101-112½, culm. 22½-23½, tars 28-29½ mm.

This I consider to be a strongly marked race of the common *Icterus gularis*, being apparently a representative form of it and confined to the peninsula of Yucatan.

I. gularis has been described by Wagler as a bird of Mexico from a specimen in the Berlin Musuem. Being aware of this fact and having convinced myself that four specimens from Yucatan in my collection agreed in several characters by which again they were different from two skins of *I. gularis* from Guatemala and Tehuantepec, Western Mexico, I forwarded my skins to Prof. Cabanis of Berlin asking him to compare them with Wagler's type of *I. gularis*.

My respected friend, having accomplished my wishes with his usual kindness, replied as follows: "Wagler's type of *I. gularis* agrees perfectly with your skins (from Tehuantepec and Guatemala) both in coloration and size, and is of the same origin (viz. Tehuantepec)."

Some time later I asked Prof. Ridgway what was his opinion about my proposed Yucatan race of *I. gularis*, and he kindly replied: "There can be no doubt that your proposed separation of the Yucatan bird as a subspecies is justifiable; for all the Yucatan specimens are alike in much smaller measurements, as described in your letter." Prof. Ridgway informed me that the National Museum's series consisted of the following specimens, viz.: from Yucatan, 4 adults; Tehuantepec, 4 adults; Guatemala, 2 adults; Salvador, 1 adult. At the same time he most obligingly sent me for inspection one very pale colored specimen from Yucatan, and a very intensely colored one from San Salvador, the latter approaching my Yucatan specimens in its coloration.

The results of my studies in this connection are that in Yucatan occurs a dwarf race of *I. gularis* Wagl. differing from the typical bird of Mexico, which also inhabits Guatemala and San Salvador, in its much inferior size, and perhaps in getting, when fully adult, a much finer and rather splendid fiery orange tint of the yellow plumage.

Regarding the last named distinction it appears that *I. gularis yucatanensis* differs in the same way from true *gularis* as *I. cucullatus igneus* Ridgw., from the same locality, does from *I. cucullatus* of the tableland of Mexico. It is true that the immature bird from Yucatan is of a pale orange yellow, as is the rule with adults of true *gularis*. Thus I believe the Yucatan bird, sent me by Prof. Ridgway for examination, to be in immature dress. It shows yellowish olive margins to the tips of the black feathers of the upper back, which I regard to be a sign of immaturity, not to be found in the adults of my collection. At the same time it may be admitted that the San Salvador skin belonging to U. S. National Museum shows somewhat of the fiery orange color which is so remarkably shown by the adults of the Yucatan race. Nevertheless this coloration in the Salvador bird is of a less intense and splendid character. Professor Cabanis also tells me that out of two specimens of Oaxaca, Southern Mexico, belonging to the Berlin Musuem, one is in yellow, the other in orange-red dress.

Notwithstanding these facts, for the present I am inclined to think that true *gularis* never attains such a splendid and deep fiery plumage as it is certainly the rule with the Yucatan bird. Regarding the San Salvador bird, Prof. Ridgway suggested to me that it might perhaps constitute a third race, characterized by combining the large size of "the one form with the intense colors of the other." This should be made out with a larger series of skins, but I find that the plumage of the last-named bird is but a little more reddish orange or fiery than in my specimen from Tehuantepec. I nevertheless should remark that it has the bill much more slender and rather more curved than in either of my specimens from Tehuantepec and Guatemala, which possess rather stronger and quite straight bills.

My four skins from Yucatan in general agree very well among themselves regarding colors. One has the rump and the abdomen slightly varied with a paler orange yellow, while another, which from its small measurements I regard to be an adult female, differs from the presumed males by showing a darker and less reddish orange color of the body, and has the orange of the middle back (near the black mantle) soiled with ochraceous brown.

I may add that in the new form the wings, bill, and legs (with the claws also) are invariably shorter, but that the tail is quite of the same length as in true *gularis.* Perhaps the white of the inner webs of the quills is a little purer, and the black of the throat runs rather more to a point on the jugulum instead of being rounded beneath.

MEASUREMENTS.

	Long. tot.	al.	caud.	culm.	tars.	
1. *Icterus gularis*, ad., Tehuantepec, Mus. H. v B. No. 2604.	228	127	108	25¼	29½	mm.
2. *Icterus gularis*, ad. Vera Paz, Guatemala (Sarg. coll.), Mus. H. v. B. No. 4188	232	134	111	27	31	"
3. *Icterus gularis?* ♂ San Salvador (Capt. Dow), U. S. Nat. Mus. No. 29443	238	121½	107	26¼	29½	"
4. *Icterus gularis yucatanensis* (♂) ad. Yucatan (Gaumer), Mus. H. v. B.	232	116	106	22¾	28½	"
5. *Icterus gularis yucatanensis* (♂) ad. Merida, Yucatan, June, Mus. H. v. B.	244	119	109	23¼	28½	"
6. *Icterus gularis yucatanensis* (♂) ad. Merida, Yucatan, June, Mus. H. v. B.	235	117	112½	23½	28	"
7. *Icterus gularis yucatanensis* (♀) ad. Merida, Yucatan, June, Mus H. v. B.	222	107	101	22½	28½	"
8. *Icterus gularis yucatanensis*, imm. Merida, Dec. 23, '64, A. Schott, U. S. Nat. Mus. No. 36837	228	111½	103	22	28½	"

8. Myiobius ridgwayi, sp. nov.

Diag.—M. capite supra cum dorso superiore brunneo-olivaceis, captit viridescentiore. Uropygio et corpore subtus unicolore sordide ochraceo-flavis. Remigibus cum alarum tectricibus superioribus brunneo-nigris brunneo-olivaceo marginatis et lavatis. Cauda unicolore nigra. Pilei medii plumis in mare adulto aureo-flavis.

Obs. *M. xanthopygo* (Spix) ex Bahia affinis sed colore uropygii (in M. xanthopygo sulphureo) et colore corporis inferioris ochraceo unicolore (in M. xanthopygo—nisi jugulo lateribusque ochraceo brunneis—pallide sulphureo) necnon colore capitis et dorsi olivaceo brunnescentiore primo visu distinguendus.

Habitat: Prov. Rio de Janeiro, S. Brazil: Petropolis (♂ ad. in Mus. H. v. B. ex Rey) (♀) "South America" (Rio by make) U. S. Nat. Mus. No. 24005 (Cruise of the Delaware. Dr. G. R. Horner).

♂ ad. Long. tot. 122, al. 61½, caud. 62½, culm. 9¼, tars. 17½ mm.

I have long had a *Myiobius* from Petropolis, Prov. Rio (received from Dr. E. Rey of Leipzig), in my collection which I regarded as quite distinct from *M. xanthopygus* Spix, but having seen only one specimen, and being at that time somewhat uncertain about Spix's bird, I was unwilling to describe it as a new species. Now Prof. Ridgway lately sent me for examination another example of the same species which, although the exact locality is not stated, I should think from the make up of the skin is also a Rio skin. It agrees very well with my Petropolis specimen with the exception that it has no yellow on the vertex, from which I believe it to be a female or immature bird. The wing and tail-feathers are moulting, and consequently it presents somewhat smaller dimensions. At the same time I have been able to examine in the Munich Museum the type of *Platyrhynchus xanthopygus* Spix, said to be from Rio de Janeiro*, which I found to be quite identical with Bahia skins in my collection.

Now *M. ridgwayi*, which I have named in compliment to my illustrious friend Prof. Robert Ridgway, differs very decidedly from two specimens in my collection from Bahia, viz., true *xanthopygus* Spix, in the following points of distinction.

In *M. ridgwayi* the rump and all the underparts of the body, including under wing- and tail-coverts, are of a nearly uniform ochraceous yellow, and there is no trace of darker coloring on the jugulum (or upper breast), sides of body, and under tail coverts. In *M. xanthopygus* the latter parts are decidedly suffused with ochraceous brown, while the throat, the belly, and the rump show a pure and clear *sulphur yellow.* The olive-green of the head above and of the upper back presents more a brownish or ochraceous shade in *M. ridgwayi*, while these parts are of a purer green in *M. xanthopygus.* The tail-feathers in the former are of a much deeper black, while they appear brownish black with greenish margins in the Bahia skins. The bill is not so broad in the new species, and the under mandible is darker, being nearly white with a blackish tip in the other bird. The wings in my Rio bird are a little shorter, the tail much longer, than in the Bahia skins. Some time since when Mr. Sclater wrote his 'Catalogue of the Tyrannidæ of the British Museum,' I communicated my Rio specimen to him, pointing out in what way it differed from *M. xanthopygus* (Spix), but my English friend could not satisfy himself of its distinctness. He even does not admit *M. xanthopygus* as a species, which is different from *M. barbatus* by its brownish jugulum, sides of body, and under tail-coverts, etc. Nevertheless, I am fully satisfied with the validity of all these species, and I trust Prof. Ridgway supports this opinion.

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* This may be an erroneous locality; there is no locality noted in Spix's work, Vol. II, p. 9.—H. v. B.

9. **Synallaxis coryi**, sp. nov.

DIAGN.—S. corpore supra saturate brunneo, pileo obscuriore vel minus rufescente. *Stria superciliari* supra oculos incipiente lata ad nucham ducta cum *capitis* et *colli lateribus* (his sordidius) *rufo-badiis.* Corpore subtus sordide brunneo-griseo, gula abdomineqae pallidioribus fere albo-griseis. Mento rufo tincto. Remigibus earumque tectricibus superioribus rufo-brunneo marginatis. Rectricibus externis—nisi pogonis interno parte basali fusco marginato—fere omnino rufo-brunneis, mediis pogonio interno fusco, externo rufo-brunneo. Tectricibus alarum inferioribus et remigum margine basali intus rufis. Rostro—nisi mandibulae dimidio basali flavo—et pedibus corneis.

Rectricibus omnibus in parte apicali angustatis barbis decompositis fere ut in *S. fuliginosa*, cui affinis videtur haec nova species.

HABITAT: *Merida*, Venezuela, duo specimina in Mus. H. v. B. asservantur.

Long. tot. 166-183, al. 55-58¾, caud. 98-62, culm. 12½-12¾, tars. 22-23 mm.

This new species, which I have named in honor of my respected friend, Mr. Charles B. Cory, of Boston, does not resemble intimately any of the known species of *Synallaxis.* Mr. Sclater, who has examined one of my specimens, agrees with me that it is quite a new bird. One of my two specimens has longer wings and tail than the other. The larger-sized bird seems to be the younger one, as it shows an unmistakable character of immaturity in its fluffy plumage. The smaller-sized specimen, however, possesses all characters of maturity.

Regarding colors, there is hardly any difference between these specimens, with the exception that the smaller bird presents one feather of orange rufous on the chin, while in the larger bird the whole chin is slightly suffused with rufous. Perhaps when quite adult this species may get an orange rufous chin spot, as in many species of *Synallaxis.*

The nearest ally of *S. coryi* may perhaps be *S. fuliginosa* Lafr. of Colombia, which presents quite the same form and general structure of the tail-feathers, but is quite different in its coloration.

In *S. fuliginosa* both webs of all the tail-feathers are of a uniform dark rufous brown, inclining to chestnut. In *S. coryi* the two or four middle tail-feathers have their inner webs uniform dusky or blackish brown, only the outer webs being rufous brown, as in *S. fuliginosa.*

The outer tail-feathers in the same way show more or less of blackish brown on the inner margins of the basal portion on their inner web, while the outermost are uniform rufous brown, as in the Bogotan species.

The upper parts of the body in *S. coryi* are of a very dark and sombre sepia or bistre brown with a slight admixture of rufous brown. The upper part of the head is a little darker and blacker or less rufescent than the back. In *S. fuliginosa* all the upper parts of the body are clear rufous brown (perhaps burnt umber of Ridgway's nomenclature), the top of the head being still brighter and more rufescent than the back.

The *chief* distinguishing character of *S. coryi* consists in its *cinnamon rufous superciliary* or postocular stripe, which begins just above the eye and runs to the sides of the neck. The sides of the head and neck are also varied with cinnamon-rufous, but a little darker and less vivid than the stripe behind the eye. In *fuliginosa* there is a grayish superciliary stripe, the upper ear-coverts are brown, the under ones dark gray, as well as the remaining portion of the sides of the head and neck.

The under surface of the body in *S. coryi* is much lighter than in *S. fuliginosa*, being whitish on the throat and the middle of the abdomen, and brownish gray on the breast and sides of the body, while in *S. fuliginosa* nearly all the under surface of the body is of a uniform, dark cinereous, and the chin never shows any rufous suffusion, as is the case in *S. coryi*.

The outer aspect of the wing in *S. coryi* is rather darker rufous brown, and the under wing-coverts and inner margins of the quills are a uniform cinnamon rufous, being grayish with a slight admixture of rufous in *S. fuliginosa*.

The bill in *S. coryi* is slightly longer and the base of the under mandible is yellow to a much greater extent.

The wings and the tail are much shorter than in *S. fuliginosa*.

SUPPLEMENTARY REMARKS ON THE GENUS *PSITTACULA* BRISSON.

BY ROBERT RIDGWAY.

IN a collection of birds from Bahia recently received at the National Museum are eight specimens of *Psittacula passerina vivida*, for the first time described in my recently published review of this genus.[*] There are five adult males and three adult females, and all exhibit the distinctive characters of the new race as compared with the true *P. passerina* (Linn.), from the more northern provinces of Brazil. Some of the males show, more or less strongly, a bluish tinge across the hind-neck, this in one of them intensified just behind and above the auriculars into a rather distinct bluish spot. The fifth specimen lacks the bluish tinge on the hind neck and is somewhat lighter colored throughout, thus approaching true *P. passerina*.

Since the above specimens were received, Dr. Sclater has kindly called my attention to an important paper on species of this genus by Dr. Hartlaub[†] which I had entirely overlooked in the preparation of my 'Review' — an oversight much to be regretted but unavoidable, since at that time no copy of the volume containing the paper in question was accessible to me.

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[*] A Review of the Genus Psittacula Brisson. Proc. U. S. Nat. Mus. Vol. X, 1887, pp. 529-548.

[†] On a new Species of Parrot of the Genus *Psittacula*. By Dr. G. Hartlaub, F. M. Z. S. Proc. Zool. Soc. London, 1885, pp. 613-615, pl. 38, figs. 1, 2.

The two species particularly treated by Dr. Hartlaub are his new *P. spengeli* (misspelled *spengleri* on the plate), from Baranquilla, Columbia, and *P. cyanochlora* (Natt., MS.), from the Rio Branco (a northern tributary of the Lower Amazon). The former is probably the same as my *P. exquisita*, from Cartagena, and the latter may be the same as my *P. deliciosa*, from Santarem and Diamantina, although there are points in Dr. Hartlaub's descriptions which render the matter uncertain until type-specimens can be actually compared. For example, regarding *P. spengeli* he says that the bill is "much larger," than in *P. cyanopyga*, whereas in the type of *P. exquisita* it is rather smaller than in that species; the inner webs of the primaries are said to be black in *P. spengeli*, whereas in *P. exquisita* they are dull green, but little darker than the outer webs; the upper tail-coverts are said to be turquoise-blue, whereas in *P. exquisita* they are all pure light yellowish green, like the tail.* The habitats of the two birds are so close together, however (both being in the delta of the Magdalena River) that there is very little likelihood of the two birds proving distinct, notwithstanding these apparent differences, which may be found to disappear when specimens are compared.

The bird described by Dr. Hartlaub as *P. cyanochlora* (*ex* Natterer, MS.), seems to be very closely allied to my *P. deliciosa*, and possibly the same; but several discrepancies indicate its probable distinctness, at least as a subspecies. These discrepancies are as follows:

	In *P. cyanochlora*,	In *P. deliciosa*,
Sides of head	dilute yellowish green, like under parts.	vivid Paris-green, like forehead.
Upper tail-coverts	fine emerald green, like rump.	clear yellowish green, like tail.
Size	"altogether a larger bird, with a much smaller beak" (as compared with *P. spengeli*).	slightly smaller, with the bill hardly smaller though somewhat narrower (as compared with type of *P. exquisita*).

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* In the rather poor figure (pl. 38, fig. 1), however, they are colored green, while the lower tail-coverts are colored pure yellow in strong contrast!

A specimen mentioned by Dr. Hartlaub under *P. cyanochlora* as a supposed young male of *P. passerina*, from Caracas, is an adult male of *P. guianensis* Swains. This species agrees with *P. cyanochlora* in nearly everything except the coloration of the under wing-coverts, which is like that of *P. spengeli* in the restricted area of dark blue feathers, *P. cyanochlora* (like *P. deliciosa*, if distinct), having not only the entire under wing-coverts (except narrow outer margin) but also the whole of the axillars uniformly of this rich dark blue color. In other words, the adult male of *P. guianensis* combines the bicolored wing-lining of *P. spengeli* with the emerald-green rump of *P. cyanochlora*.

Granting that the nearness of the two localities represented respectively by *P. spengeli* and *P. exquisita* (Baranquilla and Cartagena) preclude the probability of their being separable as races even, but giving due weight to the comparatively wide separation of *P. cyanochlora* and *P. deliciosa* (the broad Amazon river, and more than four hundred miles of territory intervening) together with apparent differences of size and coloration noted above, we would have for the region between the Lower Amazon and the Magdalena delta four definable forms, forming a graded series as follows:

Rump turquoise-blue; under wing-coverts bicolored (greenish turquoise-blue with dark blue spot) . . . . 1. P. *spengeli*
(Magdalena delta).

Rump emerald-green.
  Under wing-coverts bicolored (as in *P. spengeli*); sides of head yellowish green . . . . 2. . *P. guianensis*
  (Venezuela and Guiana).

  Under wing-coverts unicolored (wholly rich dark blue).
    Sides of head yellowish green as in *P. guianensis*. 3. *P. cyanochlora*
    (Rio Branco).
    Sides of head vivid Paris-green . . . . 4. *P. deliciosa*
    (Lower Amazon).

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ERRATA.

Page 299, line 13 from top, for **Metopidius indicus** read **Jacana indica.**
Page 346, lines 7 and 14 from top, for **Mergus** read **Merganser.**

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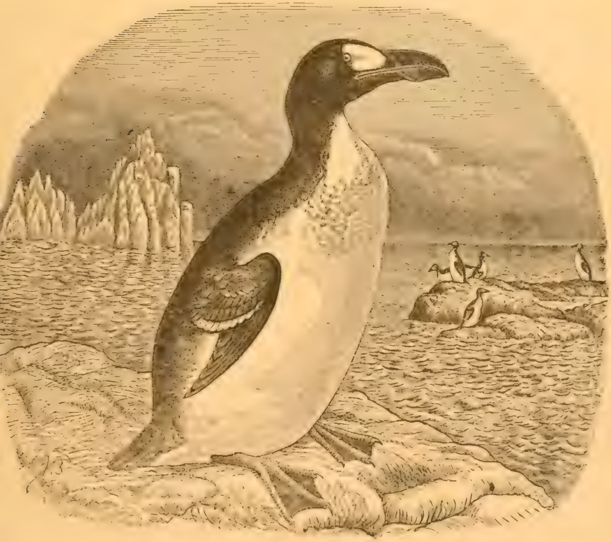

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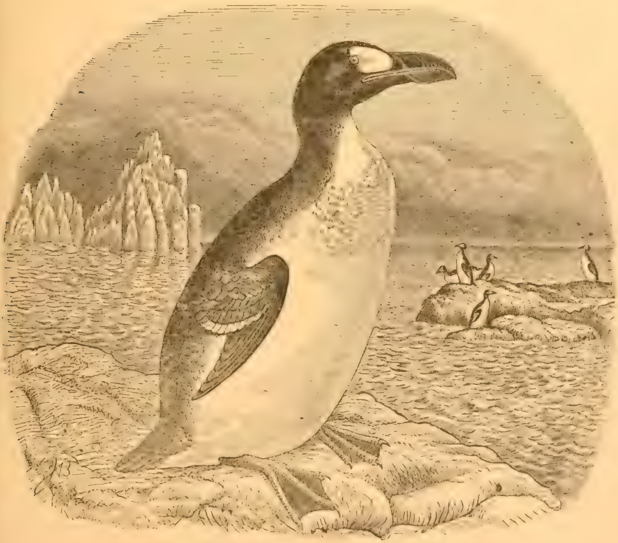

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